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INDUSTRIAL AFFAIRS

No. 522

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CONTENTS PAGE

CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

Deputy Chairman of Ukrainian Gosplan Comments on Construction Problems
(V. I. Anan'yev Interview; RABOCHAYA GAZETA, 26 Oct 79).. 1

Moscow's Construction Industry Judged by Standard Net Output
(V. Romanyuk; IZVESTIYA, 26 Sep 79)...................... 8

Increase in Housing Complaints
(M. Marmalyukov; SOVETSKAYA BELORUSSIYA, 19 Oct 79)...... 14

Major Changes in Construction Management Outlined
(FINANSY SSSR, Oct 79).................................... 18

Organizational Steps To Improve Performance of Construction Jobs
(P. D. Podshivalenko; FINANSY SSSR, Oct 79)............... 24

Streamlined Planning Accelerates Excavator Plant Construction
(A. Borovoy, et al.; Interview; STROITEL'NAYA GAZETA, 12 Oct 79)... 39

Engineer Suggests Ways To Curb Building Heat Loss
(A. Ivyanskiy; STROITEL'NAYA GAZETA, 28 Oct 79).......... 47

Two-Year Planning System Problems Resolved
(SEL'SKAYA ZHIZN', 30 Aug 79)............................ 50

Moscow Committee Attacks Inadequacies of Rural Construction
(MOSKOVSKAYA PRAVDA, 30 Aug 79)........................ 52

CONTENTS (Continued) Page

Prefab Wooden Houses for Sale in Rural Areas
(TRUD, 21 Nov 79).. 56

Rural Construction Combines Show Promise
(O. Pakhomova, I. Svirin; STROITEL'NAYA GAZETA,
23 Nov 79).. 59

Problems Encountered in Construction of Livestock Enclosures
(I. Panyukov, V. Kapel'kin; STROITEL'NAYA GAZETA,
2 Nov 79).. 63

Developments in Uzbek Construction Management
(Various sources, various dates)....................... 66

Belorussian Construction Experiment in Uzbekistan,
by S. Omerov
Improving Management of Construction Operations,
by G. M. Agafonov, L. V. Borodulin

Construction Ministry Hoards Materials
(V. Kulikov; EKONOMICHESKAYA GAZETA, No 35, 1979)...... 73

Pilot Projects Suffer Cutbacks
(V. Yazykov; STROITEL'NAYA GAZETA, 25 Nov 79).......... 76

Overworked Construction Combine Limits New Projects
(O. Demenin; STROITEL'NAYA GAZETA, 26 Oct 79).......... 79

Construction Quality Control System Introduced
(M. Gotgil'f, R. Valitov; NA STROYKAKH ROSSII, No 7,
1979).. 83

Moscow's Builders of Utilities, Services Favor New Planning System
(G. Yermonskaya; MOSKOVSKAYA PRAVDA, 3 Oct 79)......... 93

Concrete-Panel Plant's Poor Beginning
(V. Pankratov, G. Pekarskiy; STROITEL'NAYA GAZETA,
14 Nov 79)... 97

Structural Chipboard Technology Found Wanting
(O. Pakhomova; STROITEL'NAYA GAZETA, 24 Oct 79)........ 100

Method of Analyzing Utilization of Fixed Capital
(V. T. Karpunin; ZHILISHCHNOYE STROITEL'STVO,
Oct 79).. 104

CONTENTS (Continued) Page

Estonian Construction Industry News
(Various sources, various dates)..................... 111

Unaccounted Equipment
Decisions by Estonian Ministers
Construction Outfit Supply System

ELECTRONICS AND PRECISION EQUIPMENT

'Ural-114' Turntable Receiver, 'Kvarts-404' Radio Receiver
(EKONOMICHESKAYA GAZETA, Nov, Dec 79)................ 119

Popular Model
'Kvarts-404' Radio Receiver

Characteristics of TV Set, Tape Recorder Noted
(STROITEL'STVO I ARKHITEKTURA MOSKVY, Oct 79)........ 121

'Elektron-718' TV
'Saturn-201' Tape Recorder

Features of 'Snezhet'-202 Tape Recorder Lauded
(GORODSKOYE KHOZYAYSTVO MOSKVY, Nov 79).............. 123

METALWORKING EQUIPMENT

Machine Building Industry in Belorussia
(L. Firisanov; PROMYSHLENNOST' BELORUSSII, Jun 79)... 124

CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

DEPUTY CHAIRMAN OF UKRAINIAN GOSPLAN COMMENTS ON CONSTRUCTION PROBLEMS

Kiev RABOCHAYA GAZETA in Russian 26 Oct 79 p 3

[Interview with Deputy Chairman of Gosplan for the Ukrainian SSR V.I. Anan'yev, by V. Litvin]

[Text] [Question] It is known that the work performed by builders is evaluated based upon the volume of work carried out. It is possible for builders to be satisfied with their endeavors once they have fulfilled their plan for volume, even though a number of projects were not turned over for operation. Under the new conditions, the work of construction organizations and ministries will be planned and evaluated not according to volume, but rather on the basis of projects being placed in operation and commodity production. How is this working out in actual practice?

[Answer] The decree set forth a system of planned indices for construction organizations, one which orients them towards the final results of their work -- the placing in operation of production capabilities and projects. The most important such index is that of commodity construction production, which appears as the value of the construction-installation work carried out at enterprises, projects and complexes that are fully prepared to turn out products and also to be turned over to the customers.

This index, together with the indices for the placing in operation of capabilities and projects and for growth in labor productivity and profit, will be used for evaluating the work results of the construction organizations and for the formation of the economic incentive funds.

[Question] An account for a finished project introduces many new factors into the relationships between the builders and customers. In what manner will the expenditures of the builders, including the sub-contracting organizations, be financed?

[Answer] Commencing with the Eleventh Five-Year Plan, the principle of continuous financing will be introduced for construction projects. It will be based upon the title lists, cover the entire period of construction and the amounts will conform with those called for in the estimate.

The expenditures of contracting organizations prior to the period established for the delivery of enterprises, phases and projects on which construction has been completed will be covered by means of bank credit, with use being made for this purpose of funds released by the customer in connection with the conversion over to accounts requiring no intermediate payments.

In some branches, a gradual conversion will be carried out over to the construction of enterprises, using credit presented to the contracting construction organizations in the amount of the full estimated cost of the enterprises. In such cases, the customer will have fully completed enterprises turned over for his use.

The accounts between the general contractor and customer will be carried out for the completed complex of special construction-installation work turned over to the general contractor, work which was fulfilled in the volume called for in the sub-contract agreement.

[Question] Is it advisable to introduce new and more severe economic sanctions for disruptions in the construction schedules? Indeed, the sanctions in use today affect the status of affairs very little. Suppose the fines were not paid out of the state's pocket, but rather were drawn from the material incentive fund of an enterprise...

[Answer] Economic sanctions for disruptions in construction schedules, established by decree, are collected in the form of raised percentages (up to five) for the use of a bank loan, issued to the contracting organizations for unfinished construction. The percentages for bank credit for covering the expenditures of contracting organizations for unfinished construction are applied to the results of their financial-economic activity.

The payment of such fines affects the amount of withholdings paid into the incentive funds.

The builders settle their credit accounts after the project has been fully erected and turned over to the customer. Substantial material losses are sustained if the above work is not completed within the normative or planned period. And conversely, the timely or ahead-of-schedule delivery of a project to a customer for operation serves to strengthen the financial status of a collective by raising its bonus fund.

[Question] One of the principal causes of slow construction rates is a lack of balance between the plans for contractual work on the one hand and the material-technical and labor resources allocated on the other. Share with us, if you will, your thoughts concerning a solution for this problem.

[Answer] Actually, one cause of the non-fulfillment of capital construction plans is a lack of balance between the program for construction-installation work and the plans for material-technical support. Thus, an important step towards achieving improvements in planning is that of establishing a system for the development of a five-year plan, based upon the delivery volumes for materials, machines, mechanisms and other material-technical resources required for fulfillment of the plan.

Up until recently, upon completion of the economic year all of the approved planning indices lost their force and orders and agreements calling for the delivery of materials, equipment and cable products were cancelled. The termination of these orders and agreements, which meant that products would not be delivered even when funds and a limit were available, leads to their reformulation for the following year.

The new system calls for the manufacturing-ministries to be supplied with the principal technological and power equipment, for the delivery orders to remain active throughout the entire period of construction and for the equipment delivery orders to remain in effect until finally they are carried out completely.

[Question] It would be good also to establish the material responsibility of the territorial organs of Gossnab to the sub-contracting subunits and that of the supplying-plants to the territorial organs of Gossnab for late deliveries of materials. What new developments do you foresee taking place with regard to this problem?

[Answer] In 1981, USSR Gossnab must complete the conversion of construction projects, those included in the state plan for capital construction, over to a system of complex supply. Under this system they will receive all of their materials through the territorial organs of material-technical supply, in accordance with the orders of construction-installation organizations and in conformity with their requirements, as defined in the plans and estimates.

USSR Gosplan, USSR Gossnab, the USSR ministries and the councils of ministers of the union republics must, within a brief interval of time, develop many normative and methodological documents in conformity with the principal conditions set forth in the decree. It is obvious that the problems concerned with tardy deliveries of materials will be reflected in these documents.

[Question] For many years now there has been a critical shortage of the non-metallic materials required for the production of concrete and especially precast reinforced concrete. One overhears this fact being mentioned at almost every construction project. It is possible that this is the result of the quarries and other enterprises being dispersed among numerous executive committees, ministries and departments. And what would be the result if all of these enterprises were transferred over to Minpromstroymaterialov [Ministry of the Construction Materials Industry]?

[Answer] The funds allocated for non-metallic construction materials satisfy fully the republic's construction requirements. The difficulties encountered in supplying the construction organizations with these products are associated mainly with unsatisfactory work on the part of railroad transport.

With regard to concentrating all production of non-metallic construction materials within the Minpromstroymaterialov system, such an action would not make it possible to increase the production volume for these materials, since Minpromstroymaterialov for the Ukrainian SSR can limit the capital investments made available for developing this branch.

At the same time, Minenergo, Mintransstroy [Ministry of Transport Construction] and other ministries and departments are investing considerable resources in the development of the non-metallic industry and in this manner they are promoting its further development throughout the republic.

[Question] Dozens of installation subunits perform work at certain large construction projects during the start-up period. It is difficult to coordinate their operations. Administratively they are not subordinate to the general contractor and their responsibility for the timely placing in operation of projects is conditional. It is stipulated in the decree that, commencing with the Eleventh Five-Year Plan, the indices for the placing in operation of capabilities and projects will be established by the installation organizations. In a press statement, the USSR Deputy Minister of Construction, L. Bibin, expressed the need for creating at each construction project a service of the leading sub-contractor of Minmontazhspetsstroy [Ministry of Installation and Special Construction Work]. This service would coordinate the actions of the specialized subunits and settle accounts for the completed projects. What solution can you offer for this problem?

[Answer] At the present time, the relationships between general contractors and sub-contractors and their rights, obligations and responsibilities when concluding and carrying out the agreements of a sub-contract are regulated by a special statute, approved by USSR Gosstroy and USSR Gosplan in 1970 and with changes and refinements introduced into it in 1975.

In conformity with this document, the sub-contractor shares responsibility with the general contractor for the timely creation of production capabilities and projects and their delivery to the customer for complete testing of the equipment and the commencement of production.

The fact that the contractual obligations of the parties are not being observed in all areas and appropriate sanctions are not being employed for non-fulfillment of these obligations is explained by a lowering of responsibility and production discipline among those charged with carrying out the work.

The general contractor, to whom the required rights have been extended, has been, is and will continue to be the head figure at a construction project.

In order to coordinate the work of the general contracting and sub-contracting organizations, the role played by complexes headed by general contractors must be raised. These complexes include representatives from all of the sub-contracting organizations.

[Question] There is such an evaluative index as profit. Today it stimulates only weakly the efforts of builders directed towards raising the effectiveness of capital investments. Contributions to the budget are planned depending upon the profitability achieved. An organization performs well -- it supplies more funds to the budget. If it performs poorly -- a lower profit task is established for it and accordingly a reduced amount is deducted for the state. The Belorussian builders, the first to have developed an account for a finished project, proposed that the earning of profit be directly dependent upon the construction rates and schedules, with a stable norm for contributions to the budget being established, one which will be equal, for example, to 10 percent of the cost of the project. An organization performs well -- it earns more profit; if it performs poorly -- less profit and in both instances the state will receive its full amount. Is this variant acceptable for our republic? If not, then why not? And if yes, then what steps are being taken in this regard by Gosplan for the Ukrainian SSR?

[Answer] Yes. This variant has been approved in our republic in two of the larger construction ministries -- Mintyazhstroy [Ministry of Construction of Heavy Industry Establishments] for the Ukrainian SSR and Minmontazhspetsstroy for the Ukrainian SSR.

The Belorussian experiment is being introduced in two stages. The first calls for the conversion over to planning contractual work based upon the index for relative commodity production, the accounts for the fulfillment of construction-installation work -- based upon enterprises, pilot complexes, phases and projects that have been completed and turned over for operation and which are prepared to produce goods the extension of credit for expenditures for unfinished production of construction-installation work, the use of unrealized profit for covering planned expenditures and for the advance expenditure of material incentive funds, which in part are not covered by balance profit.

Mintyazhstroy for the Ukrainian SSR is presently carrying out preparatory work in connection with converting over to planning normative deductions from profit left at the disposal of the ministry for developing its own productive base, introducing scientific and engineering achievements and economic incentives for its subordinate organizations and enterprises and covering other planned expenditures; norms for deductions from profit for adding to the material incentives fund, the fund for socio-cultural measures and housing construction and the fund for production development.

When an organization performs in a fine manner -- it will obtain more of the profit left at its disposal.

[Question] In connection with the conversion over to accounting based upon completed projects, will any changes take place in the organizational structure of control: ministry combine - trust - control? Indeed, the need for converting over to a double or triple-element of control was mentioned in the decree.

[Answer] The decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Improvements in Planning and Increased Effect of Economic Mechanism for Raising Production Efficiency and the Quality of Work" stipulates that the conversion over to a double or triple-element systme of control over capital construction is to be carried out during the 1979-1981 period.

At the present time, general plans for controlling construction are being prepared throughout the republic.

[Question] A very strict regulation exists at the present time: so many persons to be accepted, so many to be let go, a particular type of control to be created. As has been reported in the press, Minpromstroy [Ministry of Industrial Construction] for the Belorussian SSR, in introducing the method of accounting for finished projects, proposed that it be given the right to make certain decisions independently (within the limits of the wage fund approved by USSR Minpromstroy), such as the number of personnel and the personnel structure required to carry out a task, such that the wage fund economy thus realized is used in conformity with the recommendations made for disseminating the experience of the Azot Production Association at Shchekino. This will produce an economy of approximately 10 percent in the number of workers. Is this factor being taken into account in connection with improving the system of planning?

[Answer] Commencing with the Eleventh Five-Year Plan, the limit for the number of manual and office workers, the overall wage fund and the increase in labor productivity will be furnished in the five-year plans for those ministries and departments engaged in carrying out construction-installation work. During the 1979-1980 period, USSR Gosstroy, with the participation of the construction ministries, must implement measures for the preparation of the estimate-normative base required for the gradual conversion (during the Eleventh Five-Year Plan) over to planning labor productivity in the construction-installation organizations based upon net output (normative) or another index which reflects more accurately the changes in labor expenditures and the wage fund -- according to the norm for a ruble of output and based upon the index used for planning labor productivity.

[Question] Does Gosplan have any proposals aimed at improving the material incentive measures employed for stimulating the builders? Indeed, distribution of the incentive fund in the ministries -- for placing projects in operation, fulfilling quarterly plans or introducing new equipment -- within severe percentage limits, restricts the issuing of incentives to other categories of workers, for example transport and supply workers.

[Answer] The issuing of material incentives in construction organizations is regulated by statutes on the payment of bonuses for certain indices in economic activity and it is also dependent upon the contribution made by each structural subunit to the overall operational results of the organization. In the future, improvements in the issuing of material incentives will be carried out based directly upon work efficiency and quality, the fulfillment of planned tasks and the results of production operations.

Based upon the above-mentioned resolution of the CPSU Central Committee and the USSR Council of Ministers, a new statute was developed on the awarding of bonuses to workers for placing in operation production capabilities and construction projects. The statute was approved on 11 September 1979 by USSR Goskomtrud [State Committee for Labor], USSR Gosstroy [State Construction] and the AUCCTU.

[Question] What is being done and what will be done in the future in order to reduce the number of new construction starts?

[Answer] The draft plan for 1980 calls for a 20 percent reduction in the overall number of new construction starts of a production nature and under the jurisdiction of the Council of Ministers of the Ukrainian SSR.

In the future, the number of such projects for a particular branch will be dependent upon the number of carry-over projects for the year being planned and upon the volumes of unfinished construction for the particular branch.

This work will be carried out in a systematic manner by Gosplan for the Ukrainian SSR, the appropriate ministries and departments of the Ukrainian SSR and the executive committees during the course of developing the draft annual plans and coordinating and approving the title lists for the construction projects for the given year and taking inco account strict observance of the norms for the duration of the construction work.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

MOSCOW'S CONSTRUCTION INDUSTRY JUDGED BY STANDARD NET OUTPUT

Moscow IZVESTIYA in Russian 26 Sep 79 p 2

[Article by V. Romanyuk: "The 'Uneconomical' Is Becoming Economical"]

> [Text] Since the start of the five-year plan, the work results of Moscow's construction-industry enterprises have been planned and evaluated according to standard net output.

The perennial problem: the economical is uneconomical....There is the not-so-rare situation where the manager has to decide what should be done: achieve a national-economic benefit but, in so doing, degrade the enterprise's indicators, or act in the old-fashioned way--produce articles more expensively and a little heavier, and live peacefully.

The arithmetic of success is simple here. For example, construction work requires large amounts of lightweight openwork structure. But, despite organizational efforts and appeals, the production of progressive articles had been increasing but slowly, for their manufacture had turned out to be uneconomical for enterprises that receive goals in cubic meters and in gross output. It is extremely uneconomical to make columns with metal cores; columns with flexible reinforcement that saves metal are even less economical; and it is more economical to mold large blocks than small ones. It cannot be denied: no one is his own enemy.

To make something that is economical has been uneconomical up to now--the heads of economists, managers and planners have been broken over this. To tell the truth, it was not always possible to find a way out: economic levers at times have acted to turn a saving into a loss. I was told of the economics of two plants for making prefabricated reinforced concrete: one enterprise worked worse and produced fewer cubic meters, but the wage fund was just the same as the leader's. Why? It turned out that the articles produced were sent out with a marble finish, and the gross value indicator "brought up" the wage fund.

How to get out of this paradoxical situation, which defies common sense? Change the approach itself to evaluating work results? It is tempting! The

Tenth Five-Year Plan for Glavmospromstroymaterialy [Main Administration of the Building-Materials and Constructional-Parts Industry of the Moscow City Soviet] enterprises began with a decisive shattering of existing notions about production planning and work incentives. The operation of 24 plants for prefabricated reinforced concrete began to be evaluated under a new value indicator--the standard net product. But at once the question arose: the difference in labor expenditures still is being hidden; meanwhile--from the point of view of the same labor expenditures--the output of a cubic meter of one product can cost as much as 10 cubic meters of another. A standard equivalent in-kind indicator that averages labor expenditures on the basis of a coefficient of the complexity of the product that can be computed came to the rescue. It became possible, by means of the "standard equivalent in-kind" cubic meter, to compare the labor intensiveness of various articles.

The experiment posed a broad strategic task--to find the possibility for planning production volume in indicators that exclude the use of past labor for evaluating a collective's activity, and, moreover, to create equally profitable conditions for the output of any kind of structure that is included in the plan. To what extent has the set goal been achieved? How does the new indicator "work"?

At the entrance of Kuntsevskiy Reinforced-Concrete Products Combine No 9, a laconic placard greets you: "The plan is the law; to carry it out is a duty; to overfulfill it is an honor!" I was told at the main administration that there is a strong economic services here and that the indicator of standard net output is used as a basis for planning and reporting production volume, labor productivity, determination of the ratio of the pace of growth of labor productivity and the average wage fund, in order to form funds for material-incentives and for social and cultural measures.

The combine's chief economist, R. Ol'khovenko, is energetic, competent and, to all appearances, a modern woman. She has worked as chief of the economics laboratory and as deputy chief of the economic-planning section, and for 5 years now has been chief economist. She came to this post when the experiment was being prepared. All this numerical gross output (with double accounting--under the old and the new systems) goes through her. Having assimilated excellently the essence of the new way, she has participated in working out the procedures and in improving the experiment, and she is on a par with the best scientific personnel of Gosplan and Goskomtsen [State Committee for Prices].

Rimma Nikolayevna recalls with a smile how it all began. They had worked a quarter in accordance with net output, when chief of the second department, V. Lug, turned up in the plant administration. He came displeased: again it was unprofitable! The quarter's plan had been exceeded, but the bonus fund was even reduced! The department had produced basement wall blocks meticulously..., and the plan was exceeded in kind. It was recomputed with Rimma Nikolayevna, and again this picture emerged: the department, from force of inertia, had striven for output low in labor intensiveness, with a low coefficient of complexity. Under the new accounting it turned out that the plan for standard net output had not been reached by 1½ percent. The department chief went away perplexed. He thought that only the facade of the figures and the names of the indices had been changed, but the essence of evaluating the collective's labor contribution had been changed.

"We will still 'float' with these indicators," chief of the other department, V. Miklyayev, told me with a certain irritation. "Previously, simple and heavy items were more profitable, and then we saw that they were profitable but labor intensive. It comes down to this: if it's more complicated, it's more profitable. And if it is the other way round? So how will it be now? Labor-intensive elevator shafts were taken from production, and blower modules were placed on the assembly line. New technology, new equipment, the nature of output is different....How the net output indicator will work--it is difficult to say ahead of time."

"But, why is it so difficult?" R. Ol'khovenko wonders. "Miklyayev is cunning. At first the production cost will be higher and profit will be reduced. It is necessary to develop and introduce rationalization into the process and to get along with the same manpower. When they introduced a new casting yard, six workers were freed and productivity rose by 30 percent. And now weak spots must be found and eliminated."

And there is still another position--that of chief of the first department, A. Baranchikov. When I went into the department for the first time, I saw the chief himself directing the sling men. It turned out that he himself makes molds. His deputy quite often changes places with a skilled worker. The departments work with minimum manpower, to carry out a strenuous plan that is increasingly difficult. And a mutual understanding between the department chief and the chief economist still has not been achieved. But yet there is no contradiction in the main point.

"Everyone understands: in order to give net product, it is necessary to carry out the plan for the product mix: everything is based on that," says A. Baranchikov. "We have at our disposal a set of molds for four lines. Under the gross output approach, we made expensive slab. This 'ruse' no longer gets by."

Working under the new system, the Kuntsevskiy combine has sharply improved plan fulfillment for product mix; the deadlines for outfitting facilities have been reduced by 20 percent, and there are, practically, no longer "profitable" and "unprofitable" items. It became easier to solve questions of assimilating new types of output. Since the start of the five-year plan 34 standard sizes have been introduced at the combine. The need for administrative measures to insure the output of labor-intensive articles is dispensed with, and the builders have stopped fulminating because of interruptions in the outfitting of complicated line items.

Under the experiment's terms, intrabrigade economic accountability has revealed its advantages more completely. This is what was shown by an analysis that was conducted for two economically accountable collectives. The output in 1978 of V. Boyarantsev's brigade, which was working steel billets for reinforcing cage, was 109.1 percent of 1975's, manpower was 78.6 percent, and metal savings rose 5.1-fold. Product output by D. Kamokina's brigade, which prepares concrete mix, was, respectively, 111.3 percent, and manning was 66.7 percent, while savings of cement, sand and crushed rock grew 1½-fold. In 3½ years the combine's labor productivity reached practically the level planned for the end of the five-year plan; it was planned to release 185 persons provisionally, but today 193 have already been released.

The secretary of the combine's party bureau, G. Batakov, had just come back from vacation, and he went at once to the chief economist: how were things there with net output. He himself had on the table a thick notebook in which columns of figures dazzled the eye.

"I watch the dynamics, of course," he says, raising my unspoken question. "All the technical and economic indices are at hand--without clarity in this question no other questions can be solved today. Our collective is among the initiators of the movement to retain personnel and to save labor resources, and indeed we have three-shift operation, and people do not work in white coveralls. We are trying to make working conditions socially attractive, to introduce into practice good rituals that are dedicated to workers and the issuance of the first wage rate.

Many measures bear not only economic consequences. The nature of the labor of the rigging workers has changed. While previously they loaded everything in succession, and the workers themselves knocked out the frames needed, now the rigging worker puts them in special containers in strict accordance with the technological scheme and accounts for the release of the frames by types and amount. Rigging worker Ye. Rubtsova of the fourth reinforcement department says that the work has, of course, become more interesting and responsible, but it would be necessary to increase the wage rate. Bonuses under the brigade contract are no more than 10 rubles, and then provided the department saves metal. A prerequisite for payment of a bonus in the department is not one cubic meter of rejects! Apparently a correct proviso, but rejects can also occur through no fault of the brigade. "Well, it would be all right if we left out an embedded part," says brigade leader G. Gavrilov, "or committed a violation of the technology. But if a belt is broken or the power is turned off, the slab is not completely shaped. And the bonus is lost."

The chief economist confirms that it is all true, initiative has grown and the material-incentive fund has become inadequate. It is impossible to pay from the costs of the materials saved. Gosstroy does not grant this "kindly." But a source must be found! The chief "methodologist" on net output--deputy director of the KTB [design and technology office] of Mosorgstroymaterialy V. Kovalenko--came to the combine. He made the comment: a percent must be given for losses of concrete. We went around the first department with him, and he could not believe that there was no waste. "Previously, you know, they went for the concrete," R. Ol'khovenko confided, "but now you will not even find drip marks. Our people's conscientiousness is higher, but the incentive has fallen behind...."

But not only the incentive has "fallen behind." The lack of a scales room for weighing instruments compels materials expenditures to be accounted for proportionally according to the concrete produced. Who has a saving? Everyone, and those who have produced the most concrete saved most of all. But perhaps someone has an overexpenditure? In order to take the next step--from brigade economic accountability to the brigade contract--it is necessary above all to provide the section with batchers and scales and to arrange for the accounting of materials consumption by brigades.

After beginning from the simple, more correctly, from what today seems to be simple--from individual standards for net output that are found by subtracting material expenditures from the wholesale price, Moscow's construction industry today has already converted to the development of average branch norms that are mutually coordinated with wholesale prices. A decisive turn to the new methods of management that were introduced by the decree of the CPSU Central Committee and the USSR Council of Ministers about improving planning and bettering the management mechanism has been made. Deputy director of Mosorgstroymaterialy's KTB V. Kovalenko laid before me several books of wholesale prices for prefabricated reinforced-concrete structure that had been worked up under the new methodology and approved by USSR Goskomtsen. They will go into effect 1 January 1980.

"We are proud of these documents," he says. "For the first time, price lists and average branch standards for net output have been worked out on a unit basis. We will operate on the new principles during the current five-year plan. They not only include equally profitable terms for the output of all structure but also eliminate the unprofitability of some articles and the excessively high level of profitability of others."

We add that the present variant, which is not completely polished, has been proven, that the indicator of standard net output characterizes better than others the actual work efforts of the collective and makes profitable the enterprise that is profitable to the national economy. While in 1975, prior to the start of the experiment, the capital's construction industry mastered 350 new types of articles made of reinforced concrete, in 1976, when the experiment was begun, the product mix was 685, and in 1978 it was 710. Previously, out of 4,500 specific items, interruptions occurred for 120 line items. Now, out of 6,000 line items, only 6 were not carried out (1 out of 1,000!). The materials intensiveness of prefabricated reinforced concrete was reduced by 2 percent, enabling 64,000 tons of cement and 9,000 tons of metal to be saved. Labor intensiveness was reduced for previously mastered output, which is especially important where there is a shortage of the work force.

These figures are totals and averages. In actual practice, there is still a large number of questions. An analysis of the preceding stage of the experiment indicated that, although material expenditures beyond the framework of the standard were eliminated, they actually continue to affect many indicators. Not everything, as they say, was chopped off at the roots: it turned out, for example, that setting profit norms in prices that relate to the full production cost, as was done previously, encourages and orients the enterprise to the consumption of costly materials. This occurs because the production cost includes material expenditures, and that also means past labor. As is said, you drive the devil away from the door, but he tries to climb in through the window....

It was noted at the Kuntsevskiy combine that net output does not cause an expansion of materials intensiveness but reveals an "increased interest" toward labor intensiveness (the more labor that has been invested, the greater the wage fund). Does this mean that the debate about the "profitable" and the "unprofitable" has not ended?

"Yes, the experiment continues," confirms R. Ol'khovenko, and not a trace of annoyance is seen. "We have to understand that the new criteria for evaluation have not thrown us backward, but, on the contrary, have helped good positions to be consolidated. During the Eleventh Five-Year Plan we will become like a production association, we will take three plants into our ranks. We will work together, and we have become accustomed to work well."

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

INCREASE IN HOUSING COMPLAINTS

Minsk SOVETSKAYA BELORUSSIYA in Russian 19 Oct 79 p 2

[Article by M. Marmalyukov, head of the general division of the Gomel'skaya Oblast Committee of the Communist Party of Belorussia: "Party Life: The Committee's Mail"]

[Text] At the beginning of this year we called attention to the appreciable increase in the housing complaints received by the obkom from small families and people living alone. Why? The picture revealed by the search to answer this question was as follows: construction of one-room apartments in the city of Gomel' has been curtailed in recent years. Whereas in 1976 the number built represented 9.3 percent of the total number, their share in 1978 was 7.8 percent. Housing cooperatives have ceased altogether to plan small-size dwelling units. As a result the number of those needing such space has increased rapidly. In 1976 single persons and small families in the city's rayon ispolkoms represented 20 percent of the total number of those in need of housing, but in 1978 they represented 35 percent. A study of this question also revealed the other side of the coin: large dwelling units needed for large families are not being built either.

This situation came about because two divisions of the gorispolkom--for capital construction and for housing records and distribution--are doing their work without mutual contacts and coordination. The former would accept plans of houses without taking into account what sort of dwelling units are needed, and the latter would distribute what it received without attempting to affect the planning of future housing construction in the city.

The party obkom has, of course, intervened in this matter. The plans now being selected in the city are those in which the mix of dwelling units corresponds to the needs of applicants on the list to receive housing.

The letters of the workers remind us of many important and interesting issues in practical activity, and they are being taken into account by divisions of the party obkom in their everyday affairs. The workers have helped to reveal serious shortcomings in work with personnel in Gomel'skiy and Lel'chitskiy rayons and oversights in the economic activity of a number of construction organizations and kolkhozes and sovkhozes.

Guided by the demands of the CPSU Central Committee and the instructions and recommendations of Comrade L. I. Brezhnev, the party obkom has been persistent in improving its work with letters received and to see that each of them is carefully and seriously examined not only by party committees, but also by local Soviets, trade union and Komsomol organizations and all economic officials.

The plenum of the Belorussian CP Central Committee emphasized in its decree "On Further Improvement of Work With Letters Received and Improvement of the Reception of Workers in Party, Soviet and Other Organizations of the Republic" the need to systematically analyze the character and content of the workers' letters and verbal communications, to study and summarize more thoroughly and competently the proposals, critical remarks and requests of the workers, kolkhoz members and the intelligentsia, and to make better use of the results of the analysis for further improvement of the style of party leadership.

There would seem to be no need to enumerate here the details of the measures recently taken along these lines by the party obkom and city and rayon committees. I will only note that these measures pursue a single goal: a responsive attitude toward people on the part of responsible officials at every level. Behind every letter and every verbal complaint we must see a living person with his needs and interests and in every critical remark to find the grain of truth, remembering that a man's appeal to a party or Soviet organ is ordinarily dictated by concern about public and government affairs.

A strict system has been set up in the obkom, gorkoms and raykoms of the party to keep records of letters and to check on the consideration given them. City and rural committees report regularly, once a quarter, to the obkom on a specific form which shows the number and character of the letters and all the work done with them. It has become established practice to analyze the causes giving rise to complaints. The data of these analyses and also the results of a check on individual letters are submitted for consideration to the bureau of party committees and ispolkoms of Soviets and are discussed in production conferences. For example, in the first half of this year the bureau of the party obkom examined 9 such questions, the ispolkom of the oblast Soviet discussed 11, and the bureau of party gorkoms and raykoms discussed 130. The work being done with letters received was discussed on three occasions in conferences of secretaries of party committees and chairmen of city and rayon ispolkoms.

In addition to the general analysis of the mail, which I mentioned above, we periodically classify letters according to the most crucial issues: for example, housing construction and distribution and consumer services for the public, keeping a separate record of those which are recurrent. Tabulations by topics are presented for consideration to the bureau or secretariat of the party obkom, and some of them are sent to party committees and oblast organizations for steps to be taken.

The system of reporting and regular analysis on letters received which we have established makes it possible for the party obkom to have a better knowledge of the situation at the local level and to take timely steps to correct the specific shortcomings. We are now able to intervene more vigorously in the practical affairs of individual collectives. Whereas in 1975 the work with incoming mail and the results of a check on some of them were taken up on 8 occasions in sessions of the bureau and secretariat of the party obkom, the figure for last year was 25. Gorkoms and raykoms of the party last year discussed 153 specific questions arising out of letters from the workers.

One of the causes giving rise to complaints, as shown by a study of the state of affairs at the local level, is that at certain enterprises there is no proper procedure for dealing with complaints. Certain oblast organizations and departments discounted the demand made by directors of their subordinate enterprises and organizations. In some places days and hours when workers and employees are received concerning personal matters have not been established. The decision was made to bring together in the party obkom those who are responsible for shortcomings of this kind, to call attention to their oversights, and to agree on specific steps to improve the state of affairs. All of this has brought constructive results.

The party obkom has tightened supervision over the examination of complaints and petitions submitted to other organizations for action. Directors of enterprises, kolkhozes and sovkhozes and key officials of party organizations have been made more responsible and accountable for these affairs. Now two-thirds of the letters received are dealt with directly by the obkom headquarters or by other organizations under its supervision.

The aktiv has now become more involved in handling incoming letters; voluntary commissions have sprung up in association with party committees. Rayon newspapers and the oblast newspaper have written about the activity of these commissions in the Tsentral'nyy Rayon Party Committee in Gomel' and the Dobrushskiy and Rogachevskiy party raykoms. The experience of the commission associated with the Tsentral'nyy Rayon Party Committee has been summarized by the obkom, and a special letter on this matter approved by the obkom secretariat has been sent out to all party committees.

Following the lead of the gorkoms and raykoms, large primary party organizations have begun to create such commissions. The obkom has supported them. Now voluntary commissions to monitor work with worker letters have been set up in 973 party organizations, and more than 6,000 members of party gorkoms and raykoms, deputies of local Soviets and other aktivists have become involved in their activity. Recently a conference-seminar of the chairmen of these commissions was held in the obkom headquarters; they exchanged experiences and cleared up matters they had not fully understood.

One of the most important conditions for averting complaints is to pay closer attention to people's needs and to study their disposition. The party obkom is accordingly striving to invigorate the work of information and propaganda groups, the holding of evening question-and-answer sessions in which competent officials would participate, and so on. Reports by senior officials of certain departments to work collectives are being organized in the oblast. Examination of individual letters in conferences of collectives is becoming increasingly frequent practice; secretaries of the party obkom also take part in their proceedings.

The workers' criticisms and specific recommendations have helped to correct many mistakes. This is indicated by an analysis of incoming mail. For instance, whereas in the first 6 months of last year the obkom received 217 complaints concerning job placement and labor conflicts, the number this year was 169. There has also been a drop in the number of complaints concerning improper actions by directors of construction and municipal-service organizations, kolkhozes and sovkhozes, and administrative agencies.

At the same time certain key officials try to cover over their lack of attention to so-called petty human needs with their concern about large public affairs, about fulfillment of plans, losing sight of those who fulfill the plans. It is for this reason that quite a few letters are at present being sent from our oblast to superior party organs and government agencies, republic and union departments, for which we were justly criticized in the 19th Plenum of the Belorussian CP Central Committee. In our practical work we are drawing the appropriate conclusions from that criticism.

The plenum summarized the important and fruitful activity of party and Soviet organizations in an important area of activity, the processing of worker letters, and it outlines specific ways of correcting the shortcomings. We are seeing to it that the careful and punctual consideration of every recommendation, every request and every piece of criticism be an inviolable law governing our activity. The plenum of the Belorussian CP Central Committee emphasized that well-organized work with incoming mail presupposes skillful use of the recommendations and criticism set forth in them in order to activate existing production potential and to discover and prevent shortcomings in good time. We see this as the purpose of our work with the letters of workers.

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CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

MAJOR CHANGES IN CONSTRUCTION MANAGEMENT OUTLINED

Moscow FINANSY SSSR in Russian No 10, Oct 79 pp 3-7

[Article: "Put the Decision of the Party and Government Into Effect"]

[Text] Successful, dynamic development of the socialist economy is inseparably linked to planned management of the national economy. In all stages of our country's development the Communist Party has given constant attention to questions of improving national economic planning and management. "Our country," Comrade Brezhnev remarked at the 25th CPSU Congress, "was the first to take up the path of planned management of the economy. Dozens of other countries have learned and are learning this intricate art from us. But we too now face the challenge of raising the level of planning work and bringing it into line with the new scale and makeup of our economy, with the new demands of the day."

In execution of the resolutions of the 25th party congress, subsequent Plenums of the CPSU Central Committee, and the principles of the USSR Constitution, the Central Committee of the CPSU adopted the decree "Further Improvement of the Economic Mechanism and the Tasks of Party and State Agencies" in July 1979. In the same months the decree of the CPSU Central Committee and USSR Council of Ministers entitled "Improving Planning and Bolstering the Influence of the Economic Mechanism To Raise the Efficiency of Production and Quality of Work" was adopted.

These decrees outline concrete steps which, when taken, will enable us to raise the level of planning and economic management, bring them into conformity with the demands of the current stage, the stage of developed socialism, achieve a significant rise in the efficiency of public production, accelerate scientific-technical progress and growth in labor productivity, improve product quality, and on this basis secure a steady rise in the country's economy and the well-being of the Soviet people.

These documents devote considerable attention to capital construction and have worked out concrete steps to optimize the planning and management of capital construction and to strengthen economic accountability and incentive for final results, the introduction of production capacities and installations.

During the past five-year plans our country has carried out an enormous program of capital construction that made it possible to create great economic potential. The value of fixed capital in the national economy on 1 January 1979 reached 1,540,000,000 rubles, which included 1,006,000,000 rubles of fixed productive capital. In an average week four large industrial enterprises and more than 40,000 apartments are put into use. In 1979 alone 106 million square meters of housing will be built, enabling 11 million people to improve their housing conditions. As the country's economic might grows, the efficiency of public production rises, and national income is increased on this basis, the volume of capital construction becomes larger each year. It will reach 132 billion rubles in 1979.

Along with the growth in the scale of construction the questions of construction planning, design, organization and finance have become much more complicated and problems have arisen with raising the efficiency of capital investment. There was serious criticism of existing shortcomings in construction at the 25th party congress and at subsequent Plenums of the CPSU Central Committee. At the October 1976 Plenum of the CPSU Central Committee Comrade Brezhnev named capital construction as the central problem of all the problems made paramount by the entire course of economic development.

There has been a serious lag in fulfillment of assignments for launching production capacities and fixed capital in construction in recent years. Significant violations of norms for periods of construction occur in building certain objects. Research findings indicate that certain ministries and apartments have not been persistent enough in studying the possibilities of insuring production through more efficient use of existing capacities and technical re-equipping of existing enterprises. As a result, production capacities have not been used efficiently enough, the return on capital has dropped, and the rate of production growth has slowed down.

In many cases the increase in output was achieved through new construction.

In these cases the capital investment allocated was spread out at numerous projects and sites and did not have the proper effect. The volume of above-norm incomplete construction grew steadily. Studies made by scientific research institutes of average construction time show that for many projects they exceed normative periods by two and more times. At the start of 1979 there was more than 96 billion rubles of incomplete construction. The decree emphasizes once again the need to allocate capital for construction with due regard for maximum use of production capacities and technical re-equipping of existing enterprises. Only after these opportunities are exhausted can additional growth in output be secured through new construction.

Financial and banking agencies should have an important place in this work. It is essential to prevent any dispersion of capital, take a more active part in shaping plans, try to concentrate capital at projects that are underway and make maximum use of existing production capacities and the advantages of technical re-equipping, and strictly comply with the requirements established by the decree for itemized construction lists.

The CPSU Central Committee and USSR Council of Ministers obliged USSR Gosplan, the ministries, departments, and Councils of Ministers of the Union republics to develop steps to accelerate the launching of production capacities and installations at construction sites initiated earlier and to sharply reduce the number of new construction starts so that the volume of incomplete construction can be brought within established norms in the next few years. It has not been possible to do this before because the main elements of the construction chain have not always worked closely together. Assignments for construction workers were set without considering their capabilities, and often they were revised in the course of the year. They regularly failed to fulfill assignments for growth in labor productivity and reducing the prime cost of construction and installation work and allowed large, unproductive expenditures and losses. To eliminate these shortcomings the decree envisions steps aimed at improving planning and especially at balancing volumes of capital investment with the material-technical, labor, and financial resources and the capacities of construction-installation organizations.

The principal changes in the economic management mechanism are directed to a steady rise in the importance of long-range and especially five-year plans as an important tool for realization of party economic policy. The primary plan for construction workers which determines assignments by years will be the stable five-year plan. The stability of capital investment plans is the paramount condition for better organization of construction production and achieving final results, the introduction of production capacities and fixed capital into operation.

The new procedure for evaluating the economic activities of construction and installation organizations will be very helpful in solving this problem. Evaluation of their activity and economic stimulation will be accomplished according to results of fulfillment of assignments for launching production capacities and installations, commodity construction output, and raising labor productivity and profits.

Commodity construction output with placement by purchasers, an index introduced by the decree, will play an important part in fulfillment of the assignment for launching production capacities and installations. Commodity construction output is defined as the volume of construction and installation work performed at enterprises, complexes, stages, and installations that are prepared to produce output and render services. Thus, the assignment to launch an enterprise and the commodity construction output of the contracting organization which builds the enterprise may be equated.

The principal problem, combining the efforts and responsibility of the contractor and purchaser for fulfillment of established assignments, is being solved. It is necessary to note here that the mechanism for planning commodity output in construction organizations was studied to some extent during the economic experiments in the Belorussian

Ministry of Instrument Making, Automation Equipment and Control Systems, the Lithuanian Ministry of Construction, and other construction and installation organizations. To successfully introduce this index throughout the country it is necessary to consider the positive results of the experiments and to eliminate problems they have disclosed. We must try to see that in their plans construction workers and purchasers have the same assignments for launching production capacities and installations, that they are balanced with the material resources, equipment, and capacities of the construction organizations, and that the essential planning and estimate documents are supplied on time.

The system introduced, in which purchasers pay contractors for completely finished construction and enterprises, start-up complexes, stages, and installations that have been turned over for operation and are ready to produce output and render services,aims at insuring fulfillment of the assignment for putting production capacities, installations and commodity output into use. The transition to this form of accounts will be completed in 1981. At the same time, the former system of covering the expenditures of construction organizations related to incomplete production by advance payment from purchasers is being abolished and credit for these expenditures is being introduced. This will eliminate the practice of advance payments, which did not work out, and strengthen the influence of the finance and credit system on construction.

Credit to cover expenditures related to incomplete production will be granted before the planned time of turning over completed enterprises and installations. When this time expires the credit will not cease. If the scheduled times for turning projects over to purchasers are violated, the contracting organizations will have to pay an increased rate of interest for the credit. When they launch production capacities in operation before the scheduled time the general contractor receives an amount of money from the purchaser equal to 50 percent of the planned profit for the period by which construction was shortened, but this amount cannot be more than 0.5 percent of the estimated cost of construction and insulation work for each month of time saved. This money goes into the economic stimulation funds.

The purchaser's responsibility for providing construction with financial resources remains unchanged. He is obliged to insure timely transfer of temporarily free capital (before payment for the completed enterprise or start-up complex) to the bank to be used as credit resources to cover expenditures related to incomplete construction and installation work. There is no question that with the change in the system of settlement of accounts and covering expenditures related to incomplete construction and installation work heightened demands will be made of banks and financial organizations for correct use of newly introduced economic levers to intensify their stimulating effect on achievement of the final objective in construction.

The decree outlined steps to strengthen the financial and credit effect on purchases of production and power equipment and increase their accountability for efficient use of capital allocated for equipment acquisition. Credit to pay for such equipment for production installations will be granted before the planned time of delivery for installation. When the time passes the credit will be continued at a higher rate of interest for use of the loan. Financial bodies and banks must make maximum use of the right they have been granted to strengthen checks on efficient use of capital allocated to pay for equipment and work harder to see that it is turned over for operation on time.

The significant growth in stocks of above-norm equipment, especially imported equipment, testifies to serious shortcomings in financing equipment expenditures. Considerable supplies of such equipment have accumulated at construction sites of the USSR Ministry of the Chemical Industry, the Ministry of Ferrous Metallurgy, the Ministry of Timber and Wood Processing Industry, the Ministry of the Petroleum Refining and Petrochemical Industry, and the USSR Ministry of Nonferrous Metallurgy. The enterprises and construction sites of these ministries have accumulated more than half of all uninstalled equipment and 44 percent of the above-norm and imported equipment which has not been turned over for installation on time.

The success of capital construction is determined in large part by the work of planning and surveying organizations, who are among the first to work on any new enterprise. They will now be obligated to turn over all documents related to the program of the coming year no later than 1 July of the preceding year. This will make it possible to place orders for material and equipment on time and carry out better engineering preparations for production.

The decree outlines steps to improve procedures for supplying construction sites with the necessary planning and estimate documents. A flexible new way of supplying documents has been established to step up the rate of construction, especially for large industrial complexes. Enterprises that are being built in several stages will be provided with plans and estimates calculated so that they are ready by the start of each new phase. USSR Gosstroy, which is responsible for uniform technical policy in construction, is expected to review the structure of planning organizations very soon, provide them with more specialists, and supply the necessary office equipment.

A number of steps are envisioned to increase the economic incentive of construction workers to achieve final results, launching production capacities and installations. The sizes of bonuses for timely introduction of production capacities and installations have been increased and bonuses are envisioned for successful performance of technical reequipping of existing enterprises. Sectorial correction factors to existing estimated norms for construction and installation work and norms for general overhead have been envisioned to give construction workers maximum interest.

The decree outlined major challenges in strengthening economic accountability. Whether these challenges are met successfully will depend largely on how economic accountability is organized at all levels of management. As experience has shown, brigade economic accountability is very effective in raising the efficiency of construction work. However, brigade economic accountability is being introduced slowly at present. About one-third of the total volume of construction and installation work today is done by autonomously financed brigades. Additional organizational-technical steps must be taken to insure maximum introduction of the brigade system, which will help reduce construction time, raise labor productivity, reduce prime cost, and improve the quality of construction and installation work.

In this connection the financial agencies and banks, together with construction projects and organizations, must study the accumulated experience of work by economically accountable brigades and the labor collectives that are using the Orel system of two-year planning and, identifying all the best practices that have been developed through work under the new conditions, introduce them immediately at all construction organizations and sites.

A system of continuous financing and credit for the capital construction plan has been established to create the necessary conditions for insuring successful fulfillment of the five-year plan assignments. In this case financing will be provided continuously on the basis of itemized construction lists for each period of construction within the limits of amounts ratified in the estimate.

It is proposed that in 1979-1980 USSR Gosstroy takes steps to prepare estimates and norms for a gradual transition in the 11th Five-Year Plan to planning labor productivity in construction and installation organizations by net output (normative) or some other index that more precisely reflects changes in labor inputs and planning the wages fund according to a norm of output per ruble, the index used to plan labor productivity.

Much work needs to be done to carry out the resolution on the need to improve construction management. During 1979-1981 construction must switch to two-level and three-level systems of management. For this reason financial agencies, guided by the decisions of the CPSU Central Committee and Council of Ministers of the USSR, must perform a great deal of preparatory work for the transition to the new system of management and institute checks to see that it is introduced at the established times.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ORGANIZATIONAL STEPS TO IMPROVE PERFORMANCE OF CONSTRUCTION JOBS

Moscow FINANSY SSSR in Russian No 10, Oct 79 pp 8-19

[Article by P. D. Podshivalenko, first deputy chairman of the Board of Directors of USSR Stroybank: "Improve Contract Relations in Construction"]

[Text] The decree on improving planning and strengthening the influence of the economic mechanism on raising production efficiency and work quality adopted in July 1979 by the Central Committee of the CPSU and Council of Ministers of the USSR posed the challenges of accelerating the launching of capacities and installations, reducing the number of new construction starts, reducing incomplete construction, and raising the efficiency of capital investment. Improving the organizational forms of construction is a pressing problem among the various steps toward accomplishing this major task.

Most construction work is done on contract. To determine the ways it is developing and being strengthened, let us briefly review the existing norms that regulate contract relations and the shortcomings that exist here.

The contracting organization bears responsibility for building the objects envisioned in the plan within an established time using its own men and equipment, insuring proper quality in construction and installation work, and turning over finished objects under definite conditions (therefore this is a preliminary or intermediate step). The purchaser must provide a construction site for the contractor, give him the necessary plans and estimates and equipment to be installed, and reach agreement on all economic and financial relations by participants in the investment process.

If the general contractor does not take responsibility for equipment installation, the purchaser may conclude contracts for this work directly with the plants that supply the equipment or with special installation organizations. Under the system that has operated for many years now, however, enterprises of the machine building sector are usually responsible only for timely delivery of equipment that meets the conditions of the contract concluded with the purchaser. The products are considered sold when paid for and economic stimulation funds, including bonus funds, are formed and spent. Therefore, the fate of the equipment manufactured by the plant does not interest them, even if it lies unused at the construction site for years. For their part, the general contractors do not always assume the obligation of installing equipment. Such a situation hardly fits with the task of accelerating the launching of capacities based on new equipment.

The purchaser concludes contracts for production of documents with the planning organizations that, in conformity with the plan, perform the full complex of planning jobs. It is significant that the planning organizations are in fact precluded from direct participation in the construction process. They only participate in author's supervision, but the necessity of this is determined during ratification of the plans and no one establishes a criterion of "necessity." In practice the matter is decided depending on whether the estimate contains appropriations for this purpose. The norms also contain recommendations that working drawings be done right at the construction site. This is usually done only in exceptional cases because it is a recommendation, not an order.

If it is not expedient to have a unit for technical supervision of construction in the directorship of the enterprise (structure) being built, these functions are assigned to the planning organization by contracts with the purchaser. This planning organization has the right to perform such duties if there is a commission from the ministry or department to which it is subordinate. In reality, technical supervision by planning organizations is almost completely absent. We are led to conclude that the rules should contain an absolute requirement that technical supervision of construction be transferred to planning organizations on a contract basis with no reservations whatsoever. This will increase the accountability of contracting organizations for the quality of the work they do.

It should be noted that at the present time this responsibility is extremely limited. Guarantee periods for the quality of the work done by contractors are applied only for certain types and groups of construction and installation jobs. Moreover, the guarantee periods are short (2-12 months) compared to the working lives of the installations. Because the use of construction output is ordinarily planned for many years, such guarantee periods in reality provide nothing because in most cases poor quality work shows much later than the guarantee periods. At the same time, the contracting organization does not give any guarantees for the project as a whole. It is obvious that contractors should guarantee objects, start-up complexes, stages, and entire enterprises (based on the procedures and order of introduction established by the plan and contract) and set minimum necessary guarantee times depending on the designation, technical complexity, and estimated costs of the projects in such a way that the technical feasibility of operating the object for its full service life will be disclosed during the time when the guarantee is effective.

Guarantee periods for the quality of machinery and equipment are very short (they correspond approximately to the average time that such equipment is stored in warehouses). But concealed defects permitted by suppliers can usually be identified only during the installation and testing stages. It would be advisable to set the guarantee periods for machinery and equipment to match the installation time adopted by norms (or by plan or contract where no norms are adopted). Another question that needs attention is the introduction of guarantees on the quality of construction elements, semifinished items, and parts; at the present time there are no such guarantees at all.

The essential content of the contract is fulfillment on behalf of the purchaser of the volume of construction and installation work necessary to launch the installation. But it is common knowledge that even complete and timely performance of all work and completion of jobs by particular sites is not enough to solve the problem of unconditional and comprehensive fulfillment of the start-up program on time. This is certainly understandable because the contract has no influence whatsoever on timely production and quality of planning and estimate documents and equipment, comprehensive testing of equipment, performance of start-up and adjustment jobs, and incorporation of facilities that have been turned over. These jobs are generally organized by the purchaser itself.

It is entirely logical that each one of the organizations listed above usually fulfills and even overfulfills "its" assignments. But factory and plant buildings cannot be considered finished output if they are not equipped with up-to-date machinery. Even the very latest equipment, if it is not installed, lies in the warehouse subject to physical wear and obsolescence. This applies equally to plans; when they are not carried out they become monuments to human thinking done in vain.

The existing system of management of this sector corresponds to the organizational forms of construction that have taken shape today. The basic features of this system are the following.

Construction organizations are joined together under all-Union, USSR-republic, and republic ministries and departments. The tasks of the construction organizations are to produce high-quality output, constantly improve the technology and organization of production. and on this basis achieve steady growth in labor productivity, a systematic reduction in prime cost, and an increase in profitability.

Construction organizations specialized by sector and, in part, by particular types of work (the Ministry of Construction of Petroleum and Gas Industry Enterprises, the USSR Ministry of Land Reclamation and Water Resources, and the USSR Ministry of Power and Electrification) are subordinate to the all-Union ministries and departments.

The USSR-republic ministries are organized by the territorial-sectorial principle (Ministry of Construction of Heavy Industry Enterprises, Ministry of Industrial Construction, Ministry of Construction, Ministry of Rural Construction, and others). Their specialization by sector is very relative. In fact the volume of work in the sectors assigned to these ministries is usually 50-60 percent and only on occasion is it a little higher.

Narrowly specialized installation organizations serving all the Union republics are joined under the USSR Ministry of Installation and Special Construction Work. Main administrations, associations, combines, and installation administrations have been formed for this purpose in some ministries that specialize by sector.

Numerous Union republics have established republic construction departments. For example, in the RSFSR the Ministry of Housing and Civil Construction has been formed. In addition, a significant share of construction and installation work is done by the organizations of local Soviets of Peoples' Deputies. Among these are the main administrations for housing and civil construction in Moscow, rural Moscow Oblast, Leningrad, Tashkent, Kiev, and various other cities.

Thus, work on the installation of equipment which is done by contractors has been isolated primarily in specialized ministries and independent subdivisions of other departments. But the USSR Ministry of Installation and Special Construction Work, for example, is significantly involved in the production of metal construction elements and their installation and in performance of special construction jobs as well. In addition, the ministry does a large volume of work on capital repair of equipment. Organizations of the ministry, like similar organizations in other departments, often do not have economic relations with the general contractors even though they receive a work sector from them. There are no economic accountability relations between installation organizations and equipment suppliers even though the one is installing equipment manufactured by the other. Installers work with drawings ordered by the purchaser (grant-receiving organization) because the installers do not have contract relations with the planners. The purchasers, not the contractors, are the real participants in construction work who complete the investment cycle. They are responsible not only for finishing up the work but also for turning capacities, fixed capital, and installations over to state commissions. Planning organizations and contractors are involved in this final stage as participants.

According to research findings, the main reason for failure to fulfill plans for introduction of capacities is usually failure of contractors to meet schedules for construction and installation work (60 percent). But in the Ninth Five-Year Plan, for example, the contract program was 99.9 percent performed. In their turn, contractors make reference to problems with supply of materials. But how then was the contract program as a whole fulfilled? Moreover, at the end of each year of the five-year plan construction industry organizations had above-norm stocks of commodity and material assets including metal, pipe, and construction elements, worth more than 300-500 million rubles. They also make reference to a shortage of labor. But if we consider worker mobility, it will appear that in general there is a surplus of workers.

Many complaints are made about the shortage of equipment (this factor accounts for 30 percent of the breakdowns of the start-up program). At the same time, the plan for production of primary machinery and equipment — production and power machinery and automatic lines — is being fulfilled in machine building. Several billion rubles worth of uninstalled equipment has accumulated at the warehouses of construction purchasers, some of it imported equipment.

Construction sites still have frequent problems with timely and complete plans and estimates. Here is just one fact. In the last two years the plans for capital construction in Saratovskaya Oblast have included 98 projects for which there were no planning documents; among them were such major projects as a combine to produce sets of construction elements and new capacities for the alkaline battery plant and the Balakovo Machine Building Plant imeni Dzerzhinskiy. It is thought that about 10 percent of all capacities and fixed capital are not launched on time because of lack of plans and estimates. At the same time, planning organizations are not only fulfilling, but even overfulfilling the plan of planning and surveying work and documents costing hundreds of millions of rubles are lying on the shelves unused.

From this we can see that the situation with providing essential resources for construction is not satisfactory. There are adequate resources overall, but they are not properly balanced. There are numerous cases where materials, equipment, and plans are delivered at the wrong time, with things missing, in the wrong assortment, and with unsatisfactory quality. There are cases where purchasers order resources that they do not need or where resources are sent to construction sites that do not need them or do not require the planned amount.

It is entirely proper to conclude from what has been said that the organizational forms of construction are not entirely suited to the primary objective of the construction industry in the present phase: production of finished output. Moreover, in many cases they prevent, or in any case retard, intensification and raising the efficiency of public production. Therefore, improving the contract method of work is one of the primary conditions necessary to insure planned launching of capacities.

Domestic practices, analysis of their positive and negative aspects, the experience of other CEMA countries, and the methods adopted in the developed capitalist countries can, in large part, provide the foundations for working out measures to radically improve this method of construction.

The work being done in the socialist countries is very interesting in this respect. A number of the purchaser's functions have been transferred to the general contractor in East Germany. The general contractor is fully responsible for planning, delivery of equipment and its installation, timely performance of construction jobs, and turning the installation over to the purchaser after testing. In performing his jobs, the general contractor relies on main contractors who perform definite functions: delivery of equipment, particular types of jobs, services, and so on. The general contractors in industrial construction are construction organizations or machine building enterprises who supply production equipment.

The Soviet Union uses the same general procedures in building projects abroad. Many aspects of this method of work were also found to one degree or another in the organization of construction at the giant automotive plant in Tol'yatti, which made it possible to put the first phase of this enormous enterprise into operation in just three years.

The transition to construction on an industrial basis in various sectors and subsectors of the economy in the 1960's with delivery of finished construction output to purchasers was a major stage in the development of organizational forms for construction. This system was first introduced in housing and cultural-domestic construction. Contract organizations were joined in a single production process. Construction elements and parts were manufactured by production shops; prefabricated construction designs, panels, and other parts were delivered to construction sites for installation by the transportation service; the buildings were assembled by construction and installation sections.

Practice confirmed that cooperation and specialization in a single economic complex (at first these were home-building, rural, and plant-building combines) produced a significant economic impact, accelerated the production process, reduced the cost of construction, and improved the quality of output.

The weakness of home-building organized in this way was and still is the fact that the jobs on the zero cycle are done by general construction organizations who take the role of general contractor whereas the combines who insure production of final output are subcontractors. The combines did not have, and as a rule do not have today, planning organizations within their systems. The plant-building combines did not produce finished output; they prepared production sites for installation and finishing jobs.

The practice of construction organizations' turning finished output over to purchasers can be employed broadly in construction of production facilities as well.

The above-mentioned decree of the CPSU Central Committee and USSR Council of Ministers recognizes the advisability of having certain sectors of the economy and industry move gradually to construction of enterprises (structures) with credit granted by USSR Stroybank to contracting construction organizations for the full value of construction as defined by the estimate. Completed enterprises and structures are turned over to the purchaser "ready to go."

The experiment which has been conducted since 1972 by the construction ministries and USSR Stroybank confirms the effectiveness of this procedure. The conditions of the experiment envisions that the contractors themselves will purchase and install the equipment (with their own employees or using specialized organizations and supplier plants). The costs of contracting organizations for construction jobs and payment for equipment received, incurred from the beginning construction on the enterprise or installation until it is turned over to the purchaser, are repaid by bank credit. The experiment has been followed in the construction of 30 enterprises and installations and various industrial sectors; 21 contracting organizations are taking part. During the years of the experiment 19 enterprises have been turned over for operation; 12 of them were turned over on time or ahead of schedule.

At the same time enterprises being built on a conventional basis usually take longer than normative periods. For example, the primary leather processing plant in the city of Ostashkov in Kalininskaya Oblast took 48 months to complete compared to a construction norm of 12 months, while a similar plant in Narva, Estonia, where construction was carried out following the experimental procedures, was put into operation almost 10 percent ahead of schedule. For 10 enterprises introduced by contracting organizations a savings of 17 percent of the estimated cost was achieved.

The time has come when we must introduce a new, highly efficient form of contract relations. Among the organizations of the construction ministries are subdivisions which could perform all their jobs according to the above-discussed method. For example, construction organizations that specialize in a definite sector or particular type of production (for example, organizations of the USSR Ministry of Power and Electrification in the construction of power transmission lines; the Ministry of Construction of Petroleum and Gas Industry Enterprises in petroleum and gas pipelines; the Ministry of Transport Construction in railroads and highways; the USSR Ministry of Land Reclamation and Water Management in land reclamation and irrigation structures; the organizations of all ministries and departments that manage housing and civil construction) are entirely capable of undertaking some of the functions of purchasers. including placing orders for equipment and organizing equipment installation, as well as turning over completed production capacities and facilities for operation.

Practical work has revealed a number of interesting intiatives that supplement the "ready to go" methods. Not all contractors are yet able to place orders for equipment, nor do they have specialists in composing sets of incoming equipment. Experience suggests the basic answer to this answer to this situation. Thus, the planning organizations of the Ministry of the Chemical Industry have been commissioned to develop and submit to Soyuzglavkomplekt [Main Administration for Insuring the Supply of Complete Sets of Equipment, Instruments, Cables, and Other Manufactured Articles for High-Priority Construction Projects in the Coal, Petroleum, and Other Sectors of Industry] specifications, other technical documentation, and the calculations necessary to purchase equipment for enterprises under construction and reconstruction; moreover, they have been assigned the duty of concluding contracts for delivery of this equipment to these enterprises.

The work of planning organizations in this area is already having beneficial results. Since 1971 more than 400 composite production lines, installations, and aggregates with a total value of more than 700 million rubles have been delivered to enterprises of the Ministry of the Chemical Industry, making it possible to step up the production of mineral fertilizer and other output. This form of organization of the ordering and delivery of equipment is being employed at some construction sites in light and food industry and at installations of the production base of the USSR Ministry of Rural Construction in the Non-Chernozem zone of the RSFSR.

Some of the results of work by the Giprosel'stroyindustriya [possibly State Planning Institute for the Rural Construction Industry] of the USSR Ministry of Rural Construction with ordering and delivery of equipment are interesting. They have set up a special equipment purchase division which has essentially relieved the purchaser of this labor-intensive and complex job. The division coordinates purchase specifications and supports requests. In most cases the demands of equipment batching organizations with respect to types of equipment and proposed substitutions are put in the documents by agreement. This helps preclude subsequent revision of plans caused, for example, by the absence of particular types of machines that have been withdrawn from production.

It would be very useful if this system were to take root at all large installations. It cuts the equipment installation time at the site, reduces the purchaser's staff, and promotes the use of more progressive machinery. Credit should be granted to the planning organizations for the period of making up sets of equipment, with an increase in the interest rate on loans in all cases of violation of scheduled times for delivery of sets of equipment to the construction site.

Organizations building large enterprises and installations such as blast and open hearth shops, petroleum refining installations, hydroelectric power plants, thermal and atomic power plants, and the like can also use this form for ordering equipment. However, organizations of this type are so large that they themselves can't handle the problem. It would be advisable to discuss also the question of the possibility of attaching planning and surveying organizations specializing in the corresponding jobs to them.

The CPSU Central Committee and USSR Council of Ministers have stipulated that for full-set delivery of production equipment, production lines, installations, and means of mechanization, automation, control, and monitoring the purchaser pays the general supplier for the full set of equipment delivered or installed in its entirety. Before the planned time of completion of delivery of the full set of equipment or its installation payment for the equipment is made through bank credit. Thus, a third party to contract relations appears, the general supplier. This is very important for increasing the accountability of machine building plants for introduction of their output. Inspections have demonstrated that this method of work is very effective.

On the basis of the itemized list of construction starts for the entire period of construction and in accord with the contract design and estimate, the purchaser concludes a general contract with construction organizations for the full volume of construction work; for delivery of production lines, installations, and aggregates and their installation the purchaser concludes a direct contract with the head plant, the supplier of the basic technological equipment (called the general supplier).

To complete sets of equipment and perform installation jobs the general supplier may make subcontracts with plants who are sub-suppliers of equipment and batching and installation organizations. The cost of the equipment (including expenditures for supplier's performance of work to put together and install full sets of equipment) is determined in the contract on the basis of the ratified estimated cost and is final.

The conditions of the experiment envision insuring that the supplier plants and organizations they bring in have an interest in launching the enterprises (start-up complexes, facilities, and installations). After completion of work and acceptance by the purchaser the savings compared to the contract cost of equipment and expenditures for batching and installation remains with the general supplier. Where the equipment is launched on time or ahead of schedule the plants have the right to receive a bonus from the purchasers.

At the same time, the participants in the experiment are materially accountable for compliance with contract obligations and if they violate them they must, in addition to paying fines and penalties, indemnify losses they have caused. Expenditures to pay fines and penalties and indemnify losses occurring as the result of failure to fulfill contract obligations are charged against the organization responsible for failure to meet the timetable for performance of the jobs. Thus, the receipt of profit and formation of economic stimulation funds for the plants that supply equipment depend in this case not only on shipping the equipment, but also putting it into complete sets, installing it, and turning it over to the purchaser.

The value of the manufactured production lines, units, and aggregates in warehouses, in the installation process, and installed but not turned over to the purchaser is recorded on the balance of the general supplier, not of the project purchaser. Accounts between them can be settled only for fully composed and installed sets of equipment for an installation, distinct production facilities, start-up complexes, phases, or the enterprise as a whole.

A study of work done on these principles illustrates the effectiveness of organizing construction in this way.

According to a contract between the former Nevinnomyssk Chemical Combine and a supplier the latter put together, installed, and turned over for opration three technological lines to produce weak nitric acid, one in the fourth quarter of 1972 and two in the second quarter of 1973; the scheduled introduction time for all three lines was the third quarter of 1973. The general supplier shipped the primary equipment and coordinated delivery of equipment by 92 sub-suppliers. Delivery of production equipment with a high degree of factory readiness made it possible to reduce the cost of the equipment and achieve a savings against the estimated cost of production lines turned over for operation. A line to bleach cotton fabric at the Ternopol' Cotton Fabric Combine was delivered and installed by the supplier plant in two months where the installation period ratified in the plan was 3-4 months.

The resolutions of the 25th CPSU Congress envisioned "increasing the role and accountability of the machine building ministries and enterprises for insuring full-set delivery, installation, and incorporation of the equipment they manufacture."* It should be observed that there are already organizations which use these working methods entirely. We are referring to the modular set method of construction used in the construction of product pipelines. Modular set units are finished pumping, compressor, and booster stations, boilers, and other structures fully manufactured at the plant in modules and sets, including their equipment, and then installed on the line. They are built with economical designs using the most efficient materials and the factory readiness of the structures reaches 90-100 percent. The finished modules and sets are delivered from the plant to a designated place where they are installed by a special traveling brigade.

This is how the Dem'yansk pumping plant for petroleum was built. The plant was manufactured in two months; it took eight days to deliver it to the point of installation and three days to install it. One of the large boiler rooms was put into operation at the same place in 3.5 months, whereas this usually takes at least two years. Use of this method offers an opportunity to raise labor productivity at construction sites by 6-8 times.

A large association,Sibkomplektmontazh [Siberian Batching and Installation] Association,has been formed in Tyumen'; it engages only in manufacturing modular units and in modular construction.**

The association includes plants that produce modules, traveling installation columns, and the like. Under this system the Ministry of Construction of Petroleum and Gas Industry Enterprises, the Ministry of the Petroleum Industry, and the Ministry of the Gas Industry act essentially as customers for finished production systems and composite units. By building installations that are "ready to go," the contractor is turning over finished products and is responsible to the customer for both the technical level and the cost. The association receives bank credit for expenditures on incomplete production.

In 1977 the CPSU Central Committee approved the experience of the Ministry of Chemical and Petroleum Machine Building. In the Ninth Five-Year Plan the Ministry switched from delivering equipment "here and there" to insuring that construction sites received full production lines.

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* "Materialy XXV S"yezda KPSS" [Materials of the 25th CPSU Congress], p 12.

** The "blok-boksy" [box units] produced by the Association are in reality a type of machine building output.

Thus the Ministry acted as a general supplier. It supplies enterprise construction sites with full sets of equipment with high factory readiness; this includes equipment and instruments manufactured by other sectors. Between 1968 and 1975 they delivered 260 production lines, about 2,000 installations, and more than 3,500 composite units of equipment worth 1.3 billion rubles to their customers. The average annual economic effect in the national economy from delivery of full sets of equipment during this period was 200-220 million rubles. The main thing that facilitated such a change for the better was identifying the head plant to be responsible for full delivery of production lines.

However, in certain respects the experience of the Ministry of Chemical and Petroleum Machine Building is not finished in economic terms. Fulfillment of the sales plan, computation of profits, and formation of economic stimulation funds is done not by degree of completion of delivery of sets of equipment, but by extent of delivery of equipment making up the sets. Payment for deliveries is done in the same way. The plants do not undertake to install the equipment at the sites where they supply it. Because there have not been any changes in the system of sales and payment for equipment, it is understandable that the effect of the economic management mechanism, including financial and credit levers, to accelerate and improve the delivery, batching, and installation of equipment remains inadequate. The method of work of the Tyumen' association is preferable.

It is becoming increasingly important to organize help for contracting organizations in the introduction of progressive work methods and technology in construction. At the present time this work is performed to some extent by the Orgtekhstroy [Construction Organization and Technology] trusts and administrations. It is usually carried on with deductions from the profit of the construction organization. In the situation today their activity is frequently limited to fulfillment of assignments for introduction of scientific organization of labor. But in many cases the boundaries of the activity of the construction organization and technology agencies have become much broader. The Ukrorgtekhsel'stroy [possibly Ukrainian Organization and Technology of Rural Construction] Trust provides an example. It develops compositional plans for projects, catalogues of standardized lightened construction elements and parts, and standard and experimental designs of production buildings and provides working plans, critical path schedules, technology cards, and labor process cards to construction sites.

The time has obviously come to review the work of the Orgtekhstroy organizations. It is not enough to introduce various achievements of construction science and technology. They must help contracting organizations (for pay, with participation in profit) in their production activity, especially when things are not going well, and they must operate on full economic accountability. The Orgekhstroy trusts could, on a contract basis, study the reserves and potential of such organizations and outline a system of measures to introduce scientific developments and progressive construction elements and materials, improve production technology, raise the level of construction organization and work mechanization, and employ advanced labor techniques, receiving payment depending on the introduction and actual efficiency of the steps taken. Until payment is received the Orgtekhstroy organizations can use bank credit. It should be expected that switching them to the performance of functions related to improving construction production, consultation, and practical implementation of suggestions will play a significant part in raising the efficiency of construction.

Conditions have now come about in our country for a transition to performing the work of launching capacities through the efforts of contract organizations working entirely on an industrial basis turning over finished products "ready to go" and large machine building enterprises with general construction and specialized construction organizations participating as subcontractors; broad involvement of planning organizations in deliveries of equipment and composing full sets; organization of engineering consultation on economic accountability principles. Needless to say, finished products must in all cases be turned over to state acceptance commissions by the manufacturers.

There is one more important conclusion. The introduction of these forms of contract relations necessitates a broadening of credit relations in construction and, in this way, strengthens its impact on fulfillment of the start-up program.

At the same time as we disseminate more progressive organizational forms of construction, it is necessary to switch to progressive methods of managing the construction sector, methods that are more suited to the challenges of scientific-technical progress, improving intrasectorial and intersectorial ties, creating conditions for taking advantage of cooperation and specialization, and ultimately, fulfilling and overfulfilling the start-up program.

Despite the fact that associations have become the primary management element in industry, purchaser organizations have not undergone any changes at all and essentially remain weak subdivisions (at each particular enterprise and construction site), unable to effectively influence the course of construction, quality of work, and cost. Unified city-wide directorates for housing and cultural-domestic construction have been organized in many cities, for example Moscow, Orel, Odessa, Sterlitamak, and Minsk; this makes it possible to save money, introduce flow methods, and improve work quality. The railroads have unified purchaser groups, despite their great length and significant number of autonomously financed organizations. Why is it impossible to introduce this system at production associations? This would unquestionably strengthen the purchaser service and bolster its position in relation to other participants in the investment process.

The management of contracting trusts today is assigned to territorial and zonal (figured for one or two, sometimes three, oblasts) main administrations for construction, oblast associations, or combines. Territorial administrations, associations, and combines are often subordinate to production main administrations.

With an organizational structure consisting of four, and often even five, links (if we consider the intratrust subdivisions, USSR, USSR-republic, and republic ministries and departments), coordination of the activity of general construction, specialized, and other organizations is more difficult and decisions are held up on every day questions, some of which cannot be postponed. Transportation, machinery, production of construction elements and materials, and procurement and batching of material resources have been singled out from the many contracting trusts as independent subdivisions. Statutory subdivisions have been formed on this basis for the corresponding types of activities. Therefore, the trust today actually has nothing to manage; it has been deprived of the material-technical foundation necessary for active intervention in the affairs of lower-ranking organizations.

Because the general construction ministries are organized by territory and sector while the other ministries are specialized by sector or subject, a large number of construction organizations may operate in the same economic region. In the Tatar ASSR, for example, there are 117 contracting organizations subordinate to 31 ministries and departments, most of them outside the republic. For this reason the primary organizations are often small and unable to carry on all construction work on an industrial basis. What happens in reality is that the capacities of the construction industry are split up and scattered.

The objective laws of development of the socialist economy that are deepening the process of specialization inexorably impel construction in the direction of managing production with larger organizations.

The Belorussian SSR Ministry of Industrial Construction has taken a great step forward. In 1977 it organized the Gomel'promstroy [Gomel' Industrial Construction] production construction and installation administration. This move was dictated by the increased volume of work in the region. In 1977 the association performed 70 million rubles of contract work. In 1978 this index will reach 100 million rubles. We should observe that slightly more than 20 percent of all trusts today have work volumes of 25 million rubles or more.

The new form of organizing industrial construction in Gomel' and nearby cities permitted maximum use of production facilities located in them without building new construction industry enterprises and allowed them to receive needed construction elements from large bases of the ministry located in other cities. In addition, with such large work volumes it was possible to deepen production specialization and manipulate available resources more successfully.

In early 1976 the Belorussian SSR Ministry of Industrial Construction organized the Minsk Industrial Home-Building Production Association. It was formed from a block development trust, two home-building combines, and enterprises that produce parts for large-panel homebuilding. The total volume of construction work in the new subdivision was more than 70 million rubles in 1976-1978, and in the future it will increase to 85 million rubles. The association does almost all its work with its own personnel.

The CPSU Central Committee and USSR Council of Ministers decree calls for completing formation of production associations in industry in the next two or three years. In capital construction the assignment says that the transition to two-level and three-level management systems should be carried out in 1979-1981. The primary economically accountable element of construction production will be the production construction and installation association, and only in a few cases the trust. This expresses a distinctive feature of the development of the socialist economy in the current phase: the growth of production concentration.

The formation of production construction and installation associations is expected to insure the necessary preconditions for allout deepening of production specialization. Simply by uniting the efforts of the enterprises that belong to them, to say nothing of other factors, the associations create favorable conditions for increasing production volu and saving labor, material-technical, and financial resources, that is, for raising the efficiency and quality of work. The construction organization in the full sense of the word will usually be a complex of production units, possibly including experimental production facilities and other subunits which were formerly independent enterprises and units. It would be advisable for the production construction and installation associations to include, as independent subdivisions on full economic accountability, mechanization trusts, motor vehicle transportation services, production batching trusts and administrations, and planning organizations. All this creates the prerequisites that insure not just specialization of production but also optimally efficient cooperation, which is appropriate in construction work.

The role of producer of final output and, in this connection, the functions of the primary economically accountable element are passing fully to the production construction and installation associations. The units of these associations, with the exception of the above-listed ones, perform their activities on the principles of internal economic accountability.

This is a radical change in the management of construction production; since 1938 it has been based on trusts and there have not been any notable changes. It would also be wise of the banks to organize a system of construction financing, credit, and accounts on the basis of the fact that the production associations are now the fundamental management and economic accountability unit for purchasers and contractors.

The question of coordinating the activity of different organizations in territorial production complexes remains unsolved. It follows from the data cited above that the development of the construction industry in these complexes is taking place chiefly at the departmental level.

One cannot help concluding, therefore, that there must be coordination of the activities of the different organizations under USSR, USSR-republic, and local management operating in each particular territorial production complex. To some extent coordination is already being carried on in various forms and by various methods. Thus, a special administration of the RSFSR Soviet of Ministers has been organized for this purpose to deal with problems of development of the Non-Chernozem zone.

After summarizing accumulated experience it would perhaps be wise to discuss the question of forming coordinating councils in the territorial production complexes, including in them representatives of the ministries, departments, and organizations that have interests in the corresponding complexes. This council would have to have a division of USSR Gosplan or the planning commission of the Union republic. The decisions and recommendations of the council would be mandatory for all organizations of the particular complex. Proposals on questions of the activities of enterprises and organizations in the complex that are within the jurisdiction of the government of the USSR or the republic and disagreements with ministries and departments would be submitted for decision by the government of the USSR or republic.

It seems that sectorial management combined with such councils would insure fuller coordination of plans, realization of production reserves, substantial savings of material-technical, labor, and financial resources and an increase in the efficiency of capital investment and all public production.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STREAMLINED PLANNING ACCELERATES EXCAVATOR PLANT CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 12 Oct 79 p 2

[Interview with USSR Gosstroy Deputy Chairman A. Borovoy, USSR Deputy Minister of Construction of Heavy Industry Enterprises M. Shil'dkrot, USSR Deputy Minister of Heavy and Transport Machine Building V. Nalivayko, Glavkrasnoyarskstroy Chief V. Abovskiy, Glavpromstroyproyekt Chief V. Zubkov, Soyuztyazhmashproyekt Association General Director Z. Napetyan, and Moscow Promstroyproyekt Director Yu. Vostroknutov, by B. Payans: "A Plan Saves Years"]

[Text] Accelerated construction of the largest industrial complex--a heavy excavator plant comparable in its scale to the domestic giants of motor vehicle building, the Volga Motor Vehicle Plant and the Kama Motor Vehicle Plant, has been started in Krasnoyarsk as a model and a demonstration of such construction.

The entire enterprise is to be placed into operation within five and a half years--that is, 1.7 times faster than required by the standards. The construction site must become a school of highly productive labor, a standard in the use of progressive structures. It must also serve as an example of highly effective management.

The new approach to the work and some of the innovative trends permeating through all of the planning and construction of the excavator plant were the topics of discussion in a business meeting.

The Sverdlovsk Uralgiprotyazhmash [not further identified] is the general planner of the Krasnoyarsk Heavy Excavator Plant. The Moscow Promstroyproyekt [State Planning Institute for General-Construction and Sanitary-Engineering Planning of Industrial Enterprises] is responsible for matters concerning construction of the complex's main facilities, for the master plan of the zones surrounding the plant, and for the organizational plan for construction. In order to insure a high technical level and coordination in the decisions made, the USSR Gosstroy and the USSR Ministry of Heavy Machine Building ordered the Moscow Promstroyproyekt to perform the functions of the principal organization responsible for the plant's construction planning.

The Krasnoyarsk Heavy Excavator Plant is situated on an area of 220 hectares. The buildup density is maximum. Another 60 hectares have been reserved for the enterprise's future development.

There are plans for building nine large production buildings with a total area of about 800,000 square meters, 19 administrative and personal services buildings, two engineering and laboratory centers, many auxiliary buildings and structures, and a residential quarter with full cultural and personal services.

[Question] And so, there are plans for almost halving the Krasnoyarsk plant's construction time. What reasons are there for this?

Nalivayko: First of all there is the significance of the enterprise. Siberia, and especially Krasnoryaskiy Kray, possesses unique fuel, power, and metallic ore resources. Preferential development of the region's machine building base, and primarily mining maching building, is a necessary prerequisite of an integrated approach to increasing the kray's industrial potential. This is why we must build the Krasnoyarsk Heavy Excavator Plant as quickly as possible. Large open-cut mines in the eastern regions of the country have an acute need for the equipment it will be producing.

Napetyan: There are also considerations which go beyond this concrete case. We can no longer condone the usual practice of planning and building industrial complexes. It is too slow. It takes about a year to develop the technical-economic grounds for construction of a large enterprise. This is followed by a lengthy period of coordination. As an example we must coordinate the TEO [technical-economic grounds] with 13 Gosplan subdivisions. This takes up another year. The next phase of the work is the technical plan. This takes about 1 to 2 years. It also takes time to produce the working drawings. Thus construction does not even begin until the fifth, and sometimes the sixth year.

Vostroknutov: The speed issue is very important. To underestimate the pace required by the swiftness of the scientific-technical revolution means to live with obsolete notions. The Krasnoyarsk experiment is intended to proceed at a modern work pace, with more efficient organization.

Zubkov: In a word, we had to make serious corrections in the usual practice. And so we decided to create a model of an entirely different approach to the work, using the planning and construction of a heavy excavator plant as the example. The USSR Gosstroy offered many suggestions in this regard.

Borovoy: First of all I should note that the entire sequence of actions and the structure of mutual relationships were fundamentally altered in the planning and construction of the Krasnoyarsk complex. We can distinctly see the internal impact of the "transpositions" made. The TEO are interpreted and handled not as something in the preplanning stage, as something approximate and incomplete, but rather as a fundamental document in which the most important issues associated with the planned construction have been analyzed and resolved. And once this is so, the need for writing a multivolume technical plan disappears.

In turn, this fact has made it possible to change the sequence of events and concurrently reduce the intervals between them. After all, it was precisely the waiting for completion of the technical plan and the lengthy procedure of its expert examination and approval that stood as an obstacle in the way of construction for a long time. Now however, we can develop the working drawings and initiate the construction at the same time, all the more so because one more fundamental change has been made: The plant's builders were acquainted with the plan not at the end of this chain of events, but rather in the first days of the enterprise's planning, in which they participated.

All of this creates the possibilities for almost halving the plant's construction time.

[Question] It is obviously no accident that the technical plan has evolved as a stage in the many years of construction practice. Are we not taking a certain risk by erecting such a large plant without a technical plan?

Nalivayko: That depends on what you call a risk. Some particular problems may slip by the developers for a while, and possibly some things will have to be elaborated upon and improved. But I would say that all of this is a minimum risk. After all, changes dictated by the circumstances are made as a rule even in technical plans.

[Question] But aren't technical plans good because all decisions made are spelled out in detail and checked over? The TEO, meanwhile, do not contain concrete studies. In the words of cyberneticists, they contain a low volume of information.

Zubkov: No one is going to argue that technical plans are totally useless things. True, they are more-detailed. But are we not paying too high a price for such detail? It is precisely in the slowness of all of the processes that the main danger arises: Because of the slowness of the process the plan is constantly threatened by obsolescence.

Borovoy: It should not be surmised that we have estranged ourselves completely from this stage in our work on the Krasnoyarsk plan. All we have done is taken what is most significant in the technical plan and situated it in an earlier stage, one usually referred to as the preplanning stage. Thus it transforms into the planning stage. This also means that the cumbersomeness of the study has been eliminated. A modern plan can and must have a minimum document volume.

Vostroknutov: Let me cite this one example. Nineteen administrative and personal services building must be built on the Krasnoyarsk plant's territory. We have decided upon the same building type for all of them. Thus the volume of needed documents has been reduced dramatically.

[Question] What can we say concretely about the reliability and effectiveness of developing the TEO for the excavator plant?

Nalivayko: The plant's production will not only correspond to the technical level of analogous machines produced by the best foreign firms, but it will also surpass this level in relation to a number of parameters. All worker conveniences are being created in the enterprise. The overall technical level of the plant is extremely high. For example 60 percent of its equipment consists of program-controlled machine tools, and automatic and semiautomatic machines. There is also to be a closed water supply system--no wastes at all will be discharged, and no harm will be done to the environment.

Vostroknutov: I should add that the structural systems employed at the construction site are distinguished by a high degree of plant prefabrication, ease of installation, and sensible use of metal. Let me enumerate just the main technical concepts.

The "heavy" buildings are to consist of steel frames with walls and ceilings made from shaped sheet steel; buildings of "medium heaviness" will consist of a reinforced concrete frame and vertical reinforced concrete panels reaching the full height of the buildings; the buildings of auxiliary shops and the warehouses will be made of light steel structures delivered as single units. We have abandoned bricklaying almost entirely.

Abovskiy: I would like to add from my side that the high level of unification of the structural elements and standardization of the buildings has allowed Glavkrasnoyarskstroy to organize independent specialized construction processes. It has also become possible to assimilate production of new structures in parallel with the planning.

[Question] But there are still many unsolved problems in the developed TEO. They were examined relatively recently by the Main State Expert Commission of the USSR Gosstroy, which made a number of significant remarks.

Napetyan: Yes, there were remarks. As an example the technical-economic indicators for steel-casting production at the Krasnoyarsk plant were initially below those attained in the plans of similar shops of the Ministry of Chemical and Petroleum Machine Building and the Ministry of Machine Tool and Tool Building Industry. The appropriate work has been done to correct most of these problems. The TEO have already been coordinated with USSR Gosstroy and USSR Gosplan.

Borovoy: The flexible work system proposed in the Krasnoyarsk experiment is also successful in that interaction between experts and planners has become closer. After all, the experts were able to state their recommendations at an earlier stage of work on the excavator plant's TEO. For example they helped us determine the cost of the plant's construction more specifically, and it was with their help that the enterprise's electric power supply system was reworked. And on the whole the Main State Expert Commission gave a high evaluation to the Krasnoyarsk plant's TEO.

[Question] Now a little bit about the subcontractor's participation in the planning. I must admit that although this is something to make us happy, it is startling as well.

Zubkov: I can understand that it would make you happy. But what is so startling about it? After all, is it not the logical way?

[Question] Because it is commonly known that planners are the ones that are supposed to be handling the first stage of a construction project. We have never encountered situations where builders have been responsible for the initial stages of planning.

Abovskiy: Builders must participate in the planning. Everyone was aware that the TEO would spell out the choices of construction systems and their components, that they would reveal factors influencing the work pace, and that they would establish the optimum schedule. How can all of this be done without the builders?

We have departed from the traditional scheme--we did not wait for the finished plan before beginning to analyze it and initiating that procedure which we refer to as "issuing remarks." What benefit could there be in remarks made on a plan that is already finished? No, we included ourselves in the work on the TEO in the very first days. Even before the planning was started the Ministry of Heavy and Transport Machine Building permitted the Glavkrasnoyarskstroy to organize an administration to handle construction of the excavator plant. This administration subsequently became a real partner of the planners.

Zubkov: Our joint activity mainly took the form of planning and programming the forthcoming operations of mutual consultation, and of contigency planning.

Shil'dkrot: Being the director of the central interdepartmental staff, I would like to note the multifacetedness and complexity of the task. There are 26 planning and scientific research organizations taking part in the work. The staff has played a guiding role in solution of the fundamental problems concerned with planning of the plant. In precisely the same way the staff has been responsible for coordinating the decisions with construction and installation organizations. Whenever disagreements arose, they never had to appeal to any sort of higher levels of administration.

Abovskiy: It would be pertinent to recall here that a simulation model embracing all aspects of the task--construction planning, construction itself, its control, and supply--was created with the participation of Glavkrasnoyarskstroy in a short time on the basis of a program drawn up with the help of the modern methods of mathematical economics. Four principal variants and 14 subvariants were "played out" with this model. As a result we selected the best variant.

Shil'dkrot: An entirely different type of relationship, a different sort of atmosphere has evolved on the basis of all of this. The division made between planners, who create, and builders, who do, has disappeared. All are now creators. And all are now doers in their own areas.

It would also be interesting to recall some of the unique features of joint work which created the foundation for cooperation between the partners. Several general fundamental documents were written. The first of them was the "Fundamental Directions in the Plant's Construction Planning." Directions! This document discussed the directions specifically. Then a second document was submitted for inspection by the central coordinating staff--the fully concrete "Proposals on Organizing the Plant's Planning and Construction." This is extremely significant. The proposals were coordinated. And, finally, a third document was submitted--"Planning Specifications." As we can see, the content of the TEO takes on a new light. The TEO are not only a plan or model of the complex being erected, but also a model of construction, a model of administration.

The deadlines for erection of the facilities, their readiness for operation in the different years of construction, the materials, and the schedule of their deliveries were clearly spelled out right in the initial stage.

Abovskiy: One more thing: Because the model foresees breaking down the construction process into generations, complexes, units, and subunits, and because jobs are to be highly specialized, we can employ a parallel flowline method in the work. Presence of large specialized organizations of the USSR Ministry of Installation and Special Construction Work and of other ministries at the construction site increases the possibilities for maneuvering the resources and makes the entire structure and its reactions to changes arising in the course of construction more dynamic, just like in a probability model. Integrated mechanized teams are being created within the specialized subdivisions. These teams will be responsible for entire sections of the work from start to finish, and they will operate on the basis of yearly schedules and team and section contracts.

The role of the general contractor has changed somewhat correspondingly. Now his main task is to coordinate the actions of all executors and to complete work not within the realm of any organization in particular, work that cannot be specialized. The construction plan calls for filling positions such as chief builder and chief installer.

I would like to take advantage of the moment to suggest a proposal. The general contractor must be made a full partner in the planning of the facilities and, moreover, right in the initial stage. We must also create--once again in the initial stage of the financial planning period--simulation models of the planning and construction of large industrial complexes.

[Question] It would be nice to hear something about parallel planning and construction. We can probably say that this unification, this parallelism is not absolute. Precisely what order of planning and construction is to be followed in relation to the excavator plant?

Vostroknutov: It stands to reason that builders cannot be working on the basis of a drawing that is still in the hands of the planners. Such miracles simply do not occur. The order we have adopted is as follows: The planning and construction operations pertaining to the excavator plant have been subdivided into several phases: foundations; building frame; building walls and ceilings; built-in spaces; equipment foundations. Planning is about a quarter ahead of construction. This time difference is fully sufficient.

[Question] One last question. This one has to do with practical details rather than general premises. It is not entirely clear to me why the Moscow Promstroyproyekt, which is the principal organization responsible for construction planning of the Krasnoyarsk plant, was not asked to participate in development of the plant's master plan.

Zubkov: We feel this fact to be unfortunate. The uncertainty which generally exists in relation to development of master plans for industrial complexes played a role here. The process engineers felt that the master plan was their affair, while construction planners felt it to be their prerogative. But I should note that no contradictions arose in this concrete case. Formally speaking, the Moscow Promstroyproyekt was not invited to participate in development of the plant's master plan, but it did have a certain influence on its development. Process engineers of the Uralgiprotyazhmash did respond sensitively to Promstroyproyekt's remarks and proposals.

Borovoy: Thus this is yet another example of coordinated effort. Although development of the master plan was not in principle within the specialty of the process engineering organization, the proficiency it displayed and its attentive consideration of suggestions made by the Promstroyproyekt led to a good result. In the end, the master plan approved by the Ministry of Heavy and Transport Machine Building for the plant was progressive from the standpoint of the fundamental space-planning principles followed in the new construction projects.

Summarizing what has been said in our discussion, I would like to lay special emphasis on the fact that the new conception we discussed in the beginning is manifesting its fruitfulness, and it is beginning to see the light of day at the Krasnoyarsk construction site mainly owing to good mutual understanding and coordination among all participants of the plant's planning and construction. This was especially evident in complex situations where there was sufficient "fuel" for professional disputes and even conflicts. Mutual understanding invariably won out.

We have started out very well. That which we have conceived corresponds to the important principles contained within the CPSU Central Committee and USSR Council of Ministers decree "On Improving the Planning and Intensifying the Influence of the Economic Mechanism on Raising Production Effectiveness and Work Quality." Let me take this occasion to express my hope and my confidence that this construction project, to include the enterprise's actual commissioning for operation, will serve in its entirety as a model and an example from which all of our planners and builders could learn a great deal.

11004
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ENGINEER SUGGESTS WAYS TO CURB BUILDING HEAT LOSS

Moscow STROITEL'NAYA GAZETA in Russian 28 Oct 79 p 3

[Article by Candidate of Technical Sciences A. Ivyanskiy, Laboratory Director, Central Scientific Research and Experimental Planning Institute of Engineering Equipment: "The Heat is Slipping Out Into the Cold"]

[Text] Forty percent of the fuel extracted in the country is used to heat buildings. Estimates show that were we to improve building design and the structure of modern heating and ventilating systems, we could reduce fuel consumption by a third.

The fact is that all existing heating systems are designed to heat a certain mass of air. If too much air circulates, apartments become cold, and wherever circulation is clearly low, the air gets overheated. Thus significant masses of cold air get into spaces in lower stories located near entranceways. This is why we can attain a temperature of 18-20°C (as required by the norms) in such places only at the price of significant overconsumption of fuel: We are forced to heat air coming in from the street. This means that it becomes intolerably hot in the upper stories, and tenants must open their windows.

The conclusion begs itself: In order that all rooms in a residential building would be identically warm, we must improve apartment insulation and block the routes by which cold air masses penetrate into them. A new SNiP [Construction Norms and Specifications], "Heat Engineering in Construction," which went into effect on 1 July of this year established, for the first time in domestic practice, norms for penetration of air through entranceways and interstory ceiling-floor slabs. This document is doubtlessly playing a positive role in fuel economy. However, I think that some of its provisions require elaboration.

As [illegible] the requirements set for the airtightness of apartment doors are stiffer than those imposed on windows which, as we know, are shut, completely or partially (except for an air vent or a narrow slit), for the entire heating season. It is not a simple thing to attain such excessive airtightness around entrance doors; moreover, is it really necessary? On the other hand it seems to me that the seepage of air through interstory ceiling-floors must be reduced.

What the norm set by the new SNiP means is that an impressive quantity of air will seep into the apartments on the upper stories from the lower stories. Moreover this would not be fresh air: It would be contaminated by odors and microorganisms. This is naturally not a desirable phenomenon. And this is why we must block passage of air through ceiling-floors: Joints between construction structures must be plugged more carefully, and openings through which utility lines pass should be sealed off better.

A requirement to seal off windows and balcony doors had been foreseen prior to introduction of the new SNiP. Manufacturers of carpentry articles were prohibited from manufacturing them out of raw lumber and without polyurethane foam sealing material. In practice, however, this requirement has often been violated. For the same reason, on-site tests have shown, that airtightness of windows and balcony doors has been two to three times lower than permissible. And once air, I repeat, enters the apartments in quantities greater than required, it would have to be heated.

The new SNiP set a higher norm for the airtightness of windows and balcony doors, which now require implementation of a large number of production and technical measures at woodworking enterprises. The planners will be affected as well. Today, they decide on single, double, or triple glazing using a formula derived from the results of tests on five-story buildings in Moscow. But these buildings are being erected in our country from the Baltic to Kamchatka and from Murmansk to Kushka, where not only are the natural and climatic conditions different, but also the heights of the buildings vary. Thus we find that this formula cannot be applied to all cases.

Compliance with all requirements set by the SNiP "Heat Engineering For Construction" will now be checked when buildings are accepted for operation.

Among technical innovations aimed at economizing on heat, I have recommended first of all, introduction of controllable air intakes installed in the upper parts of window frames. Air entering through them beneath the ceiling is heated, and then it descends to the floor at a temperature close to that of room air. These devices could be used in conjunction with the exhaust ventilation system developed by the MNIITEP [not further identified] which is outfitted with controllable exhaust grates.

I would also recommend installation of automatic central heating systems that adjust the heat inflow on different sides of the building depending on meteorological conditions (wind, sun, precipitation, ambient air temperature).

Naturally none of the suggestions I have made here preclude the need for developing new, more economical concepts for air conditioning systems.

> The central committee of our trade union and the editorial board of the STROITEL'NAYA GAZETA are sponsoring an all-union raid on construction sites and enterprises from 12 to 16 November as part of the

all-union public inspection of the effectiveness of the use of raw materials, materials, and fuel and power resources.

The goal of the raid is to attain proper order in the storage and thrifty use of construction materials--cement, metal, lumber, and glass.

We await, from the inspection commissions, raiding teams, and all of our newspaper's readers, reports on the raid's progress, on the shortcomings revealed, and on steps taken to improve storage and thrifty use of construction materials.

We request that "Raid" be written on all letters and photographs submitted.

11004
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

TWO-YEAR PLANNING SYSTEM PROBLEMS RESOLVED

Moscow SEL'SKAYA ZHIZN' in Russian 30 Aug 79 p 2

[Article: "Discussions of the Continuous Planning System"]

[Text] There have been a number of responses to the article "Discussions of the Continuous Planning System," published 27 March. RSFSR Gosplan Deputy Chairman A. A. Kamenev believes that the article correctly raised questions associated with 2-year planning of capital investments into rural construction and into planning and exploratory operations.

The RSFSR state plan of socioeconomic development for 1976-1980 spells out the volume of capital investments to be made by the RSFSR Ministry of Agriculture as a whole in the five-year plan, broken down into individual years. The ministry has worked out the five-year plan's indicators, broken down into individual years, for the volume of output capacities to be placed into operation, the capital investments to be made, and the construction and installation operations to be completed, and it has brought them to the awareness of the oblasts, krays, and autonomous republics. This permits local agencies to organize construction according to the 2-year continuous planning principle: The first year is the working year, and the plan is not subject to alterations; the second is the preparatory, or starting year, during which insignificant corrections and alterations are permitted in the plan.

A new working plan consists of facilities under construction carried over to the next year, and the required quantity of new construction projects. But because there have been considerable delays in the commissioning of various facilities, local planning agencies are forced to make significant alterations in the plans for the current and subsequent periods, which is significantly reducing the effectiveness of 2-year planning. One of the important problems of introducing the continuous planning system is that of reinforcing the client services. Proposals for creating a single client service in agricultural construction have been prepared.

Experimental introduction of the Orel continuous planning system into rural construction was started in 1978 on the initiative of the RSFSR Gosstroy not only in Orlovskaya but also in Kaluzhskaya, Tul'skaya, and Sverdlovskaya oblasts. The RSFSR Gosplan has made the necessary allocations for the experiment. The results of the 2-year experiment will be analyzed, and recommendations on introducing this method into rural construction will be issued.

In the opinion of the RSFSR Ministry of Rural Construction, Deputy Minister L. Ya. Ivanov writes, extensive introduction of the Orel continuous planning system into rural construction will depend mainly on the attitude taken toward this step by the oblast and kray executive committees, the councils of ministers of the autonomous republics, and the client (the RSFSR Ministry of Agriculture). The ministry is in full agreement that introduction of the continuous planning and flowline construction method into rural construction will be successful, given clear coordination is achieved in the actions of all services and subdivisions involved in construction.

The article "Discussions of the Continuous Planning System" was examined by the Orlovskaya Oblast CPSU Committee. Oblast committee secretary M. A. Mironov informed us of the measures taken to supply materials, financing, equipment, and planning and estimate documents to the construction projects, and to develop the construction industry base and the construction materials base, bringing them as close as possible to the construction sites. Together with other measures, this one will promote elimination of the shortcomings mentioned in the article "Discussions of the Continuous Planning System."

11004
CSO: 1821

MOSCOW COMMITTEE ATTACKS INADEQUACIES OF RURAL CONSTRUCTION

Moscow MOSKOVSKAYA PRAVDA in Russian 30 Aug 79 p 1

[Article: "Nonchernozem Facilities Go Into Operation"]

> [Text] The Bureau of the Moscow City CPSU Committee examined the question "On Unsatisfactory Fulfillment, by Construction Organizations of the Moscow City Executive Committee, of the CPSU Central Committee and USSR Council of Ministers Decree 'On Measures For Developing Agriculture in the Nonchernozem Zone of the RSFSR'."

It is noted in the adopted decree that construction organizations and construction materials industry enterprises of the Moscow City Executive Committee did a certain amount in 3 years and 7 months of the 10th Five-Year Plan to strengthen the material-technical base of agriculture in the RSFSR's Nonchernozem Zone in compliance with the 20 March 1974 CPSU Central Committee and USSR Council of Ministers decree "On Measures for Development of Agriculture in the RSFSR Nonchernozem Zone."

The volume of construction and installation completed during this period was about 95 million rubles. Projects built and placed into operation included residential buildings with a total area of 155,700 square meters, a livestock complex with a capacity of 2,700 head at Moskovskiy Sovkhoz, an irrigation system covering an area of 170 hectares at Zabor'yevskiy Sovkhoz in Ryazanskaya Oblast, a pilot project at the Mar'inka Poultry Factory with a capacity of 80,000 laying hens, and a number of administrative, cultural, personal services, and municipal facilities.

Enterprises of the Glavmospromstroymaterialy [Main Administration of the Building Materials and Structural Parts Industry of the Moscow City Executive Committee] and the Glavmosmontazhspetsstroy [not further identified] delivered various structures, materials, and equipment worth 54.8 million rubles to agricultural construction sites.

At the same time the Bureau of the Moscow City CPSU Committee noted that erection of agricultural facilities by construction organizations of the Moscow

City Executive Committee is proceeding unsatisfactorily. The plans for construction and installation in 1976-1978 and in 7 months of the present year have not been met as a whole.

The Glavmosstroy [Main Administration for Housing and Civil Engineering Construction in Moscow] (chief, Comrade Kokhanenko) fails to meet the plan for agricultural construction every year. Construction projects that were to be completed in 1979 are experiencing significant delays.

The Bureau of the Moscow City CPSU Committee subjected executives of Mosstroy trusts No 1, No 7, and No 14 to criticism for failing to complete their assignments. The Stroitel' Trust is making extremely unsatisfactory progress in construction of agricultural facilities.

Mosstroy trusts No 3 and No 6 (acting director, Comrade Vol'tsenger, director, Comrade Naumenko) are falling behind the plan in their construction of a number of residential, cultural, and personal services facilities at the Mar'inka Poultry Factory, at Moskovskiy Sovkhoz, and in the village of Nemchinovka.

The Glavmospromstroy [not further identified] (chief, Comrade Kaminskiy) failed to complete its 1976-1978 agricultural facility construction plan. The plan for placing a number of highly important facilities into operation was not met in 1978. Nor have Glavmospormstroy organizations been able to meet the construction and installation plans for 7 months of the current year. There are significant delays in construction of pilot facilities.

The Bureau of the CPSU Moscow City Committee levied serious criticism against executives of Mosstroy Trust No 4 (director, Comrade Sapozhnikov), State Construction and Installation Association No 1 (chief, Comrade Kuznetsov), and Mosstroy Trust No 28 (director, Comrade Losev) for falling behind.

The Glavmosinzhstroy [not further identified] (chief, Comrade Molchanov) was unable to complete this year's 7-month assignment for construction of utility networks and roads at kolkhozes and sovkhozes of the RSFSR Nonchernozem Zone.

The Glavmospromstroymaterialy (chief, Comrade Osipov) and the Glavmosmontazhspetsstroy (chief, Comrade Kovalev) are tolerating incomplete deliveries of reinforced concrete structures and materials for electrical, air conditioning, and sanitary engineering facilities at a number of construction sites. The installation trusts of the Glavmosmontazhspetsstroy have assigned little manpower to the construction of some facilities, and they are failing the plan for subcontracted jobs.

The principal causes of the failure of agricultural facility construction plans include insufficient attention to them on the part of executives of main administrations of the Moscow City Executive Committee (chiefs, comrades Kokhanenko, Kaminskiy, and Molchanov), unavailability of the necessary materials and manpower at the construction sites, and poor organization of the work.

Progress in the construction of a number of facilities, a resolution of the Bureau of the Moscow City CPSU Committee emphasizes, is also being delayed as a result of shortcomings in the work of the clients--the agricultural ministries of the USSR and the RSFSR, and organizations subordinated to them, which are late in providing planning and estimate documents to the rural construction sites, and are tardy in resolving the problems of allocating the land and transferring it to the builders for construction.

Organizations of the USSR State Committee for Production-Technical Support to Agriculture are failing to meet the deadlines for deliveries of equipment and materials.

The party organizations of the main administrations, trusts, and services of the clients have weakened their exactingness toward business managers for unconditional fulfillment of planned assignments pertaining to agricultural facilities, and they are not showing concern for organizing socialist competition or for satisfying the personal needs of builders in rural areas.

The republic CPSU committee is inadequately monitoring the progress on planned assignments for building agricultural facilities, and leniency is being shown toward executives of organizations failing to comply with the orders of directive agencies concerning development of agriculture in the RSFSR Nonchernozem Zone.

The Bureau of the Moscow City CPSU Committee strictly punished the chiefs of Glavmosstroy, Glavmospromstroy, Glavmosinzhstroy, and Glavmosmontazhspetsstroy, comrades Kokhanenko, Kaminskiy, Molchanov, and Kovalev for failing to take the necessary steps to complete the state plans for building agricultural facilities in the Nonchernozem Zone of the RSFSR, and it ordered them to develop and implement concrete organizational and technical measures insuring fundamental improvement of work at rural construction sites and correction of deficiencies in completion of the 1979 plan and the 10th Five-Year Plan as a whole.

The attention of RSFSR Deputy Minister of Agriculture Comrade Poteryakhin and USSR State Committee for Production-Technical Support to Agriculture Deputy Chairman Comrade Prokhorovich was turned to serious shortcomings in the work of subordinated organizations that were late in clearing areas for construction, provided the builders with incomplete planning and technical documents, and caused delays in equipment deliveries.

Comrades Osipov and Kovalev, the chiefs of Glavmospromstroymaterialy and Glavmosmontazhspetsstroy declared publicly that enterprises of these main administrations will insure delivery of structures, articles, and materials to rural construction sites on time and in the volumes agreed upon with the construction organizations.

Comrades Kaukalov and Sapozhnikov, directors of Glavmosstroy's Stroitel' Trust and Glavmospromstroy's Mosstroy Trust No 4, were reprimanded for systematically not completing the plans and, on several occasions, failing to place agricultural facilities into operation on time.

Severe warnings were issued for failure to complete the agricultural facility construction plans to the directors of Mosstroy trusts No 6, 7, and 14, and the acting directors of Mosstroy trusts No 1 and 3 of Glavmosstroy (comrades Naumenko, Sirinka, Kremnev, Shpigel', and Vol'tsenger, to the chief of the State Construction and Installation Association No 1 (Comrade Kuznetsov), and the director of Mosstroy Trust No 28 of Glavmospromstroy (Comrade Losev).

The republic CPSU committee and the construction site party organizations were asked to intensify their surveillance over construction of agricultural facilities, to improve organizational and political work aimed at mobilizing the labor collective for unconditional fulfillment of planned assignments, and to strictly punish the executives of construction organizations failing to meet the construction and installation plans and causing late commissioning of facilities in the RSFSR Nonchernozem Zone.

11004
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PREFAB WOODEN HOUSES FOR SALE IN RURAL AREAS

Moscow TRUD in Russian 21 Nov 79 p 1

[Article: "A House for the Countryside"]

> [Text] The CPSU Central Committee and USSR Council of Ministers decree "On Further Development of Plant Production of Wooden Panel Houses and Outfits of Wooden House Parts Made From Local Materials for Rural Housing Construction" was published this week. What steps are being taken to implement this decree?
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> USSR Deputy Minister of Timber and Wood Processing Industry Nikolay Aleksandrovich Serov gave the answer to this question to our correspondent.

Enterprises of our ministry began producing wooden panel houses for rural areas relatively recently--5 or 6 years ago. A preference for shorter structures took on new force during that time.

A single-story house or a split-level houses offers tremendous advantages to a peasant over multistory residential buildings. He is able to maintain a private plot, a garden, a cellar, a summer kitchen, and the numerous other yard additions and separately standing structures needed so greatly by a household. The family is able to keep cattle, goats, piglets, birds, and even a bee garden. But the vegetable garden is what is most important.

All of these advantages are accounted for, as an example, in the experimental village of Sel'skaya in the Moscow suburbs. Here, the houses and the entire settlement give off the impression of sophisticated architectural expressiveness in the technical concepts employed, and personal conveniences.

Parts for such construction projects are being produced by the Novovyatsk Wood Panel Combine, the Perm' House Building Combine, and the Khor, Yushala, Talitsa, and Uva wood processing combines. The principal materials employed are wood fiber slabs and timber.

Three years ago our ministry's enterprises manufactured houses at a rate of 400,000 square meters per year. Today their production has risen to a million and a half square meters. In the next decade--that is, by 1990, we are to increase this output capacity by more than seven times, up to 11 million square meters per year. Our ministry will build 127 new plants and shops in order to complete this task. Their work will be coordinated by the newly organized Main Administration for Production of Wooden Houses.

Many ministries and departments are called upon to help in the implementation of the party's and government's decree. As an example the ministries of construction, road, and municipal machine building, chemical and petroleum machine building, chemical industry, ferrous metallurgy, aviation industry, gas industry, and others have been given assignments to develop and manufacture various production equipment to be used in the manufacture of articles required in the erection and furnishing of rural houses, and to supply heating units and sanitary engineering devices to the house building enterprises.

Our ministry has been designated as the principal organization for this effort; it has been given the responsibility of developing the requirements on the production equipment, on the trimming and structural materials, and on auxiliary articles, of planning house production enterprises, and of planning the houses themselves.

Several days ago the Gosgrazhdanstroy [not further identified] held a meeting in which we discussed these problems. In particular we examined the plans of the rural houses.

We have more than 70 plans as of this moment. They will be used as the basis of our work until 1985. But work is already proceeding on the basis of our recommendations on new plans for houses with improved layouts--more spatious and comfortable. They are being developed by the State Institute for the Planning of Wood Processing Industry Enterprises and by institutes of the Gosgrazhdanstroy. Living space in the new plans has been increased by 100 meters and more. Yard structures for maintaining farm animals and birds and for storing hay, and storerooms are located near the house. There is a plot of land immediately beyond the yard. Thus the old traditional look of the peasant plot is maintained. The specific features of rural living are best satisfied by a structure equipped with an orchard and a garden.

The prefabricated plant-manufactured wooden houses are light, beautiful, and economical. Their prices vary depending on the amount of useful space available. A square meter of living space costs about 150-160 rubles. If the house plan foresees built-in furniture, the price is higher. In a word, the price of the structure varies from 7,000 to 16,000 rubles. The existing system of long-term loans for builders and of advantages to the households themselves makes it possible for practically every rural laborer to acquire such a home without any special detriment to the family budget.

In conclusion I would like to say that development of plant production of wooden panel houses is a hard and long process, intended to go on for more than just a single year. But the workers of timber and wood processing industry will apply all of their effort to see that this highly important task--rebuilding rural population centers--will be completed successfully.

> And so, many enterprises have already begun manufacturing wooden panel houses. The finished products are being delivered to the countryside. And where can a builder acquire such a home, and from whom? We referred this question to N. I. Supotnitskiy, first deputy chairman of the Central Union of Consumers' Societies.

Our system has long contained specialized stores selling lumber. They are present in overy oblast, and they possess large storage areas where they can store dozens of complete wooden house packages. The existing network of such stores can handle any number of houses for sale.

What will be the selling practice? At first, we will obviously continue to follow the waiting list principle, as is the case for example with the sale of passenger cars. But when more houses become available, this principle will give way to free sale.

11004
CSO: 1821

RURAL CONSTRUCTION COMBINES SHOW PROMISE

Moscow STROITEL'NAYA GAZETA in Russian 23 Nov 79 p 3

[Article by O. Pakhomova and I. Svirin: "From Analysis to Action"]

> [Text] As was reported earlier in STROITEL'NAYA GAZETA, a conference-seminar of specialists from construction, scientific research, and planning organizations was held in Kalinin with the purpose of discussing ways to improve the activities of rural construction and house building combines, and encouraging their further development.
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> Participants of the conference included CPSU Central Committee Member, First Secretary of the Kalininskaya Oblast CPSU Committee P. Leonov, CPSU Central Committee Construction Department Sector Director A. Kosogov, USSR Deputy Minister of Rural Construction D. Breslavtsev, RSFSR Minister of Rural Construction N. Mal'tsev, and Kalininskaya Oblast Executive Committee Deputy Chairman G. Samsonov.
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> RSFSR Deputy Minister of Rural Construction G. Vedev gave a report on the work experience of the rural construction combines and on their subsequent development.

In our opinion the conference-seminar held in Kalinin was quite important because this was the first time ways to raise the effectiveness of the work of rural construction combines--a new and most progressive form of organization of construction in rural areas, upon the development of which the rate and scale of integrated transformation of the countryside depend in many ways--were discussed at such a representative forum.

The conference participants noted that many modern highly mechanized livestock farms and poultry factories, residential buildings, and cultural and personal facilities built by rural construction combines are being placed into operation faster and are costing the state less. By concentrating the work of manufacturing the parts and structures and installing the ready-made buildings, we can resolve organizational issues more efficiently than for example, in general construction trusts, and we create the conditions for flowline work and for introduction of the integral team contract. And as a result we promote growth of labor productivity.

Thus in comparison with the corresponding period of last year, in 10 months of this year the rural construction combines of the RSFSR Ministry of Rural Construction increased the volume of contracted work by 30 percent, and the volume of residential space and agricultural production buildings increased by almost 55 and 52 percent respectively.

The Yaroslavl' SSK [Rural Construction Combine] of the Primorkraysel'stroy Administration is among the leading organizations. This combine systematically completes its planned assignments. The SSK has already attained its planned output capacity this year, less than 3 years after it first became operational. It is doing a great deal to raise the degree of plant prefabrication of articles and structures. In particular, rural builders of Primorskiy Kray are successfully employing progressive piles, reinforced concrete half-frames, asbestos-cement panels and roofing, prefabricated structures for feed shops and reservoirs, and story- and room-size outer wall panels for residential buildings.

One of the main achievements of the combine collective is that of surrendering most of its facilities to the client absolutely finished. This is promoted to a considerable extent by the organizational structure adopted by the SSK. The foundation work of the Yaroslavl' combine is being done by specialized teams present in all mobile mechanized columns, and exterior utility lines are being installed by subcontracting organizations. Work is done in accordance with a construction and installation flowline system, in which specialized teams and units assemble the building frames and do all of the general construction jobs. The structures are trimmed by trimming sections and a minor mechanization section created in the SSK.

All participants of the conference-seminar were highly interested in learning about the work of the Kalinin Rural Construction Combine--a unique enterprise which has production operations producing outfits of prefabricated reinforced concrete and keramzit concrete structures for Series 25 residential and public buildings and six types of Series 209 plywood farmhouses, all under the same roof.

The combine collective has assimilated production and construction of 12 types of residential buildings, several schools, nurseries, clubs, and production buildings. Speaking frankly, this is a considerable achievement. Preparations are now underway for a transition to production of farmhouses.

The first one- and two-apartment houses have already been assembled on the combine's exhibition ground. The original design of the facades, the well conceived layout of the apartment rooms, which account for the unique features of rural life, the diversity of the construction materials employed, and the completeness of the utilities with which the buildings are provided all elicit the approval of specialists visiting Kalinin.

The conference demonstrated that there are many rural construction combines in the country which have had experience deserving of attention and publicity. As an example three suburban Moscow combines-- the Podol'sk, Klin, and Yegor'yevsk combines--are doing a great deal of purposeful work to standardize agricultural production buildings. The Novosibirsk and Slutsk SSK's have been credited with many achievements.

Nevertheless, it was noted at the conference, most of the combines are still not completing the main task for which they were created: They are not showing responsibility for the commissioning of finished facilities, and they are utilizing their planned output capacity poorly. The proportion of construction and installation performed through the efforts of SSK's is only 5.3 percent in relation to the total volume of the RSFSR Ministry of Rural Construction. The plan for placing large-panel residential buildings into operation this year calls for a volume of only 566,000 square meters due to a lack of coordination between builders and clients; consider this in light of the fact that the output capacity of the rural construction combines totals 884,000 square meters. At the same time despite the fact that the SSK's are not working at full capacity, more than 257,000 square meters of living space are presently being erected in some oblasts according to plans not calling for industrial installation of prefabricated homes.

It has been estimated that were we to load the combines to their full capacity, we could increase the volume of construction and installation by about 30 million rubles and hasten completion of the important socioeconomic task of providing comfortable living quarters to rural laborers and creating good conditions for their work and leisure.

The conference noted the principal ways for raising the economic effectiveness of SSK's. First of all we must finish drawing up the 1980 work plans for the combines as quickly as possible, making sure that the existing production capacities are operated at their full capacity. As an example the RSFSR Ministry of Rural Construction approved the draft annual programs of the Mary and Orel SSK's. But such a favorable situation is present far from everywhere. In particular, organizations of the Bryansk combine, the Engel's combine in Saratovskaya Oblast, and the Kurovskoye SSK in Kaluzhskaya Oblast submitted draft plans for examination which stated an unsatisfactory work load.

Today the country's best SSK's are employing a system of integrated engineering supply to construction sites in accordance with flowsheets and weekly and daily schedules. As was demonstrated at the conference, because materials and equipment are not available in the full amounts required, many combines are unable to take advantage of the positive experience.

In order to help the SSK's the RSFSR Ministry of Rural Construction suggests that beginning with next year we organize centralized issue of materials, equipment, machinery, and mechanisms to the operating SSK's. We believe that this good initiative should be adopted by other departments possessing rural construction combines as well.

All speakers at the conference-seminar noted that the SSK must do all of the work at a construction site through its own resources. For this purpose trimming, sanitary engineering, and electrician sections, motor columns, and mechanization and special subdivisions must be subordinated to each combine before the end of the year. This will make it possible to set up flowline production with a closed production cycle and submit finished projects to the client completely ready for operation.

The working conditions in the countryside are unique in that facilities are far apart from one another and from the production base, and the lack of roads requires constant growth in the degree of prefabrication of the articles produced. As a consequence help of greater effectiveness must be provided to SSK's by specialists of design offices specializing in reinforced concrete, by the TSNIIEPSel'stroy [not further identified], and by other institutes in introducing their developments concerned with enlarging the prefabricated structuresand raising the degree of their prefabrication. We must hasten development of standard plans for the production bases of SSK's of different output capacities, to include all necessary production operations, modern trimming conveyer lines and posts being among them. The RSFSR Ministry of Rural Construction, which presently possesses the largest quantity of rural construction combines, has decided to create production process supply bases to service each SSK individually.

We believe that the work of the SSK's can be improved to a considerable extent by organizing a socialist competition among operating enterprises next year. Rapid assimilation of planned output capacities and commissioning of finished facilities should become the principal indicators of the work of the competing collectives.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS ENCOUNTERED IN CONSTRUCTION OF LIVESTOCK ENCLOSURES

Moscow STROITEL'NAYA GAZETA in Russian 2 Nov 79 p 3

[Letter by I. Panyukov and an article in response by V. Kapel'kin: "An Obsolete Attachment to Pipes"]

> [Text] The existing standard plans for pens and milking stalls at livestock complexes call for large amounts of scarce steel piping. Taking shelter behind the contradictory directives of their superiors, clients refuse to deliver this equipment to facilities under construction. To keep from failing the opening deadlines of such complexes, building organizations are forced to make the pens and milking stalls through their own efforts, for which purpose they acquire piping and rolled metal locally by hook or by crook. Planning organizations are taking a long time in their search for replacement materials for pens and milking stalls.
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> These problems were raised in the article "Empty Pipes" published in our newspaper on 21 January of this year. What has been done to solve this urgent problem?

"Dear Editor!

"I remember breathing a sigh of relief in January when I read an explanation published in STROITEL'NAYA GAZETA and written by the USSR Gosstroy's department of construction material consumption norms, in which it was states with all certainty that irrespective of whether pens and milking stalls are treated as items in the construction and installation category or in the equipment category of the estimates, the client is obligated to deliver them. At last, I thought, we the builders would be able to dispense with the practice of "robbing Peter to pay Paul"--borrowing piping from housing and municipal construction projects and from facilities of our own base undergoing reconstruction.

"But my celebrations were premature. We went to our clients at the oblast agricultural administration, and they just laughed. They had already managed to find a loop hole--an excerpt from the minutes of a conference of representatives of the RSFSR Ministry of Agriculture and contracting ministries sponsored by RSFSR Gosplan Assistant Chairman I. Fruzdev, which stated that it was the responsibility of the contractor to deliver the piping required for pens and stalls. We were not to expect any help from the client. And so we left with nothing to show for our trip.

"Things went back to the way they used to be. The trust administration is placing pressure on our Production Process Supply Administration, and mechanized columns subordinated to us are pestering us with their demands: Two hundred forty tons of steel piping are needed for 11 livestock facilities under construction this year, to include eight pilot complexes. Thus we were forced to seek help from the Glavtsentrosel'stroy [not further identified]. Piping intended for sanitation and other facilities was turned over to us. We managed to scrape together a hundred tons after some difficulty. And where we get the rest, we do not know."

I. Panyukov,
Chief, Production Process Supply
Administration, Kalugasel'stroy Trust

> The editorial board sent I. Panyukov's letter to its correspondent in charge of the RSFSR Nonchernozem Zone, V. Kapel'kin. Here is what he reported.

It is true that RSFSR Gossplan Assistant Chairman I. Gruzdev did record the minutes of the meeting of client and contractor representatives. On the insistence of RSFSR Deputy Minister of Agriculture O. Poteryakhin it was written down in the minutes that pens and stalls were structural items, and not equipment, and therefore the contractor was the party responsible for finding the piping for these items. This was done in opposition to the clarification published in STROITEL'NAYA GAZETA on 14 January of this year by the USSR Gosstroy's department of construction material consumption norms. Nor were the objections of the representatives of the RSFSR Ministry of Rural Construction taken into account.

The RSFSR Ministry of Agriculture took the pains to see that excerpts from the minutes (which bore the signatures of the representatives of the rural construction ministry, even though they had not really signed them) were duplicated and sent to all clients in the republic. Naturally the latter have accepted the excerpts as ammunition, and now they are laughing. The contractor, meanwhile, can do nothing but cry.

Why was such a decision made? After all, O. Poteryakhin knows that it was improper. According to the clarification given by the USSR Gosstroy's department of construction material consumption norms, enclosures to be used in the maintenance of animals at livestock complexes--pens and milking stalls--are equipment, provision of which to complexes under construction is the responsibility of client organizations.

But what is this unshakable attachment the rural clients and planners have for metal? Naturally, piping is an excellent construction material. But we must also live within our means. And yet one visits a livestock complex, and all one sees is metal. You are shown a pen containing a gentle calf, but the structure of the pen is such that it could probably withstand the onslaught of a mighty tiger.

The search for a replacement material for piping used to build pens and stalls is proceeding improbably slowly, even though the alarm concerning this problem has been ringing for a long time now. Back in June 1973 a request addressed to the USSR Ministry of Agriculture to ask its planning organizations to find pen and stall plans using less metal, and mainly to replace steel piping by other materials, was recorded in the minutes of a meeting of the clients and contractors of rural facilities, held at the USSR Gosstroy's department of construction material consumption norms.

Little would have been done by the USSR Ministry of Agriculture's principal institute, the Gipronisel'khoz [All-Union Planning and Scientific Research Institute for the Planning of Standard and Experimental Agricultural Production Complexes and Grain Storage and Processing Enterprises], had the builders not displayed some initiative. It was on request of USSR Deputy Minister of Rural Construction D. Breslavtsev that specialists of the TSNIIEPSel'stroy [not further identified] began working on a new stall design. Three years later documents were published for reinforced concrete animal enclosures, coordinated with the coauthor and patron, Gipronisel'khoz. The Reinforced Concrete Articles Plant of Pokrovsel'stroy Trust in Vladimirskaya Oblast manufactured a set of reinforced concrete stalls as a special order.

It is now the third year that these carefully packaged structures are lying in the plant's finished products warehouse. Neither Gipronisel'khoz and TSNIIEPSel'stroy nor the Ministry of Agriculture and the Ministry of Rural Construction have shown any concern for installing them.

The TSNIIEPSel'stroy published a new catalog of reinforced concrete enclosures made with "reinforced reinforcement metal." And once again the coordination of the documents with Gipronisel'khoz drags on, and the search for an enterprise that could manufacture the new structures proceeds. Meanwhile, those that have already been manufactured are lying around unused.

The Mosgiproniisel'stroy [not further identified] and the Main Administration for Construction in Moscow Oblast are searching for new variants of enclosures much more intensively. These organizations have united their efforts to create and test reinforced concrete pens, and now they are making preparations for their broad introduction. The chief engineer of Mosgiproniisel'skoy, L. Sokolov, is firmly convinced that the future lies with reinforced concrete pens and stalls, which incidentally promise to have a life that is two to three times longer than stalls made from piping. And the future is quite near at hand. The Podol'sk Rural Construction Combine's plan for the future year calls for construction of livestock buildings containing pens made from reinforced concrete.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

DEVELOPMNETS IN UZBEK CONSTRUCTION MANAGEMENT

Belorussian Construction Experiment in Uzbekistan

Moscow STROITEL'NAYA GAZETA in Russian 21 Oct 79 p 2

[Article by S. Omerov, minister of construction of Uzbek SSR: "Lessons for the Future"]

[Text] The Uzbek Ministry of Construction is in its second year of operation under the conditions of the comprehensive economic experiment referred to as the "Belorussian experiment." Already it is possible to analyze the ministry's performance, to draw conclusions for the future, and to decide what can be carried over from this to the next 5-year period and what must definitely be dispensed with. This task is considerably simplified by the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Enhancing the Impact of the Economic System on Raising Production Efficiency and the Quality of Performance."

The decree assembles in one place an enormous amount of experience in planning, economic and managerial activity and takes over everything that is best and progressive in what economic science and advanced practice have developed, including a number of propositions which were verified during the Belorussian experiment. It is time to think about how to utilize what had been achieved more effectively.

The continuousness of the effect of plans, their continuity, and their consistency with the resources and capabilities of construction organizations are among the principal conditions of the Belorussian experiment. But planning authorities and our numerous clients do not always take into account the allowed construction time by any means, and they use every means, fair and foul, to get projects included in the program on the basis of their own need. At the same time they do not provide full financing and resources for projects carried over, and they do not meet the conditions for building up partial completion. These errors are committed by union ministries of light industry and the food industry, and by the republic ministries of higher and secondary specialized education, of education, of culture, of municipal utilities and services, and others.

Lack of the necessary amount of partial completion disrupts the proper pace in delivery of projects. More than 60 of the 100 production capacities planned for delivery this year are scheduled in the fourth quarter! The plan for marketed output of the construction industry was shaped accordingly: 3 percent of the volume of capacity to be delivered in the first quarter, 16 percent in the second quarter, 22 percent in the third quarter and 59 percent in the fourth quarter. Is it even conceivable--coping with such a strenuous assignment in just 3 months?! The answer is well known. We know already that as of 1 January 1980 the ministry's plan will include 90 construction projects on which completion dates have passed and a remainder whose estimated cost runs to 194 million rubles.

Clients and planning agencies should take most of the blame for this. Clients allow themselves the arbitrary in planning construction because they need not bear responsibility for delivery of projects and capacities on schedule. The marketed output of the construction industry, which is a compulsory indicator for the Uzbek Ministry of Construction, means absolutely nothing to them. And Gosplan does not insist that clients take part in the experiment on the same footing with our ministry.

Nevertheless, there have been constructive developments. The plan for marketed output of the construction industry was fulfilled at a level of 118 percent for the first 8 months. The program for delivery of capacity and projects in the first 6 months was fulfilled in its entirety. Moreover, builders of both production projects and also residential and consumer-service facilities shared in the success. The volume of unfinished performance of construction and installation work was reduced 6.5 percent more than the assignment. (But I must say that the shortcomings noted above do not afford the possibility of bringing the level of "construction in process" down to the figure required by the ministry's participation in the experiment.)

I should stress that these achievements, though modest, are directly related to reorganization resulting from participation in the experiment. Internal potential had to be found for raising the efficiency and quality of performance, and faults of our own which we previously overlooked somehow simply had to be done away with. We put our reliance on subcontracting by work teams; the objective conditions now exist for its wider application. This year we propose to do at least half of all construction and installation work by the method of team cost accounting. (Last year it was 37 percent.) We are introducing the start-to-finish contract in the Fergana and Samarkand housing construction combines.

The experiment made it necessary to raise the technical level of construction. The level of prefabrication came close to 80 percent this year. Economical materials are being introduced more widely: high-grade cement, stekloprofilit, bent shapes of rolled metal products, and so on.

Quite a lot has been done to improve the organization and management of production. For example, quarterly plans are drafted and adopted for comprehensive preparation of production. Operational planning at the local level has improved. Computerized information systems have been introduced for monitoring progress in construction of projects near completion.

All of this taken together, as well as certain principles of the experiment pertaining above all to the ministry itself (but not all participants in construction) have resulted in constructive developments. To put it simply, we are still not utilizing fully enough the potential which is lying on the surface, so to speak, which we could take up ourselves without active assistance on the part of planning agencies and clients. This is good even now, but after all we must strive for something better, we must not limit ourselves to present successes.

Of course, it is extremely important to fulfill the plans of the 5-year period, and we are striving to do this with all our energies. But we cannot forget about the future either; we must be thinking even today about the kind of methodological equipment and practical know-how we will take into the 11th Five-Year Plan, when we will immediately undertake to fulfill assignments outlined by the decree of the CPSU Central Committee and USSR Council of Ministers without waddling or trying it on to see if it fits. One of the most important tasks in the present stage would seem to be thorough preparation for reorganization. The Belorussian experiment could create the conditions for this, provided, of course, that it is fully and thoughtfully carried out.

The terms of the experiment must first be fully carried out, the subsystem represented by the client must go into operation, and supply, component and project planning organizations must become involved. There can be no arbitrariness in planning. Financing must be effectively organized. In short, if we want to achieve the objective results of the experiment, then we have to observe all its terms in carrying it out. Otherwise it is quite possible that in 1981 not only contractors, but other sections of the construction industry will prove to be unprepared for the reorganization. Everything would have to begin from scratch. That is why we must decide even now what to carry over from this to the next 5-year period and to take pains so that our knowledge and know-how prove to be useful and adequate for performance of the tasks set by the decree of the CPSU Central Committee and USSR Council of Ministers.

Improving Management of Construction Operations

Tashkent STROITEL'STVO I ARKHITEKTURA UZBEKISTANA in Russian No 8, Aug 79 pp 11-12

[Article by G. M. Agafonov, candidate of engineering sciences, and L. V. Borodulin, engineer, both of the production technology association Uzstroysistema: "The OASU [computerized system for management of the sector] and Other Aspects of Improving the Management of the Construction Industry in the Uzbek Ministry of Construction"]

[Text] The 25th CPSU Congress stated one of the principal tasks to be performed in order to raise the efficiency of social production is to improve management at all levels of production. The construction industry is one of the principal sectors of the economy and has an exceptional role in solving the tasks of the continued rise in the material and cultural levels of the people's life.

Over the last 10 or 15 years Uzbekistan's construction industry has developed into a mighty sector and takes a leading place in the republic's economy. The volume of construction and installation work in the Uzbek Ministry of Construction has increased more than 1.3-fold. Moreover, the number of projects put into service has increased more than 1.5-fold. Particularly notable is the increase in construction of facilities for cultural and consumer services and housing, which represent about 40 percent of the total volume of the ministry's construction and installation work. The sharp rise in the volume of construction, the increasing complexity of relations in the economy and the continuously growing flow of information have made it necessary to revamp the ministry's structure, to set up specialized construction trusts and associations, to open up new plants in the reinforced-concrete products industry and new housing construction combines, and to apply up-to-date construction technology and also scientifically sound methods of organizing work and management. The use of computers, one of the highest attainments of the scientific-technical revolution, in organizations of the Uzbek Ministry of Construction is a qualitatively new and effective means of managing the construction industry. Thanks to up-to-date methods of mathematical-economic modelbuilding and systems analysis a computerized system for management of the sector [OASU] is being developed; in future it will become an organic part of the republic's computerized system for data collection and processing.

In 1978 the specialized production technology association Uzstroysistema was created in order to effectively solve the problems involved in improving management in the Uzbek Ministry of Construction; its principal functions consist of the development and practical application of the methods of mathematical-economic modelbuilding, the devising of computer algorithms and programs encompassing the processes of planning, accounting, analysis and management, development of materials and manuals concerning methods, and the training of personnel. The association includes a central standard research bureau [TsNIIB], a bureau for expert evaluation and improvement of features of project plans, and also a number of affiliates in the republic's various cities. The association uses the ES-1022 and Minsk-32 computers and punched tape and card computer equipment installed at computer and calculating stations in Tashkent, Samarkand and Bukhara.

Up to now the greatest degree of efficiency has been obtained within the OASU in the subsystems for technical-and-economic planning, material and technical supply, and labor and wages recording and analysis. Good results have also been achieved in developing operational data systems. In the subsystem for technical-and-economic planning the first set of problems chosen was the interrelated group including formation of the plan for contract work, the plan for comprehensive engineering preparation of production, computation of the summary indicators of the plan for "own" capital construction, and so on. This set of problems encompasses 5-year, annual and current planning at the level of the ministry, the association and trust. The experimental department of the association Uzstroysistema, which has assumed the functions of shaping the plan for contract work in 1979, not only successfully performed the task it was set, but also prepared its transfer to the computer. All work on the algorithm has now been completed and programs have been compiled to compile the sector's plan on the ES computer so as to take into account all the principal indicators of the Belorussian experiment in the construction industry, which has been widely introduced in the system of the Uzbek Ministry of Construction. The principle of the specific program was made the basis of this experiment; this principle orients the conceptions of national economic planning toward final results, toward the needs of society [1]. The transition has accordingly been made in the Uzbek Ministry of Construction from evaluation of the performance of construction organizations on the basis of the gross output indicator (the evaluation was made according to funds for construction and installation work assimilated) to a simple and comprehensible evaluation according to finished projects delivered or technologically complete units and complexes.

Construction time of projects, which are regulated by scientifically sound norms (Construction Norm 440-72) and the up-to-date technology, which is based on the methods of constructing network models, make it possible with the computer's help to make the transition to optimum multivariant planning in the sector. The problems "A-PLAN" and "Komplekt-3" worked out jointly with other organizations, the Scientific Research Institute for Construction Economics of Estonian Gosstroy, and the Tashkent Scientific Research Laboratory for the Organization, Management and Economics of Construction of the Tashkent Polytechnic Institute, are being introduced in the computer center of the association Uzstroysistema in order to solve this problem. As a result of this work a comprehensive plan has been compiled which reflects the technological and organizational model of construction, which stands as the principal document for the conduct of operations during the year with a quarterly breakdown. For many years work has been performed successfully in the Uzbek Ministry of Construction to improve material and technical supply, and work has also been done to computerize computations involved in determining the need for physical resources. Their computerization is an urgent task both from the standpoint of increasing the needed accuracy and reliability of planning data and also from the standpoint of reducing the load on accountants.

The task of determining the need for physical resources per million rubles of construction and installation work, which helps to compile the material and technical supply plan for the preplanning period, is in effect in the system of the Uzbek Ministry of Construction. The systems approach in unifying the problems of the subsystem for technical-and-economic planning and material and technical supply is possible only if their respective data are compatible.

The bookkeeping subsystem of the OASU performs the entire task of obtaining the needed analytical and synthetic indicators and of working up from them operational data concerning the condition of operational activity of the trusts and the ministry as a whole. In the sector's central bookkeeping department punched card and tape calculating machines and the computers of the association Uzstroysistema are processing data on the inflow of fixed capital for replacement, records on expenditures for repair, and computations with a given discreteness of the share of the value of fixed capital which must be included in the enterprise's cost because of its use.

The operational bookkeeping method, which has been programmed on the computer, is used to keep records of materials in the industry. The technology for keeping records on materials is based on the requirement that a clear distinction be made between the inflow and outflow of materials, which are recorded by means of special punched carrier machines. The computer is also used for keeping labor and wage records, which previously was one of the most time-consuming computational processes [2]. The trend outlined in operational monitoring of construction progress in the Uzbek Ministry of Construction is toward expansion and introduction of communication equipment, above all teletype equipment, which is intended for data collection and transmission. Radio equipment is used at projects and construction sites and also in administrations located within permissible geographic limits. Here there is a great deal more to do, above all to solve the problem of technical supply of communication apparatus to all trusts and projects within the republic and also in applying equipment for digital transmission of data intended to be read into the computer. For that purpose three problems known as OIS-M, OIS-T and AIS, intended for operational monitoring of construction progress at the republic's most important projects, are being introduced on the computer of the computer center of Uzstroysistema. On the basis of the data they yield the ministry's leadership conducts phone conferences with production specialists. There is no question that a large potential still exists for developing operational control. Even today it is clear that we need to conduct an economic and comprehensive analysis of the production and operations of trusts and administrations, which will make it possible for managers to compile a scientifically sound plan, to monitor fulfillment progress and to regulate the construction industry responsibly, eliminate bottlenecks, discover hidden potential, and so on.

Comprehensive systems analysis of cost-accounting activity on the computer will make it possible to conduct a study of ways of shaping data on the various elements of the construction industry into a unified whole and of exerting an impact on the operational processes of the system as a whole and of its individual elements. These problems have been taken into account in drawing up the topic plan of Uzstroysistema and will be resolved in 1979 and the years to follow.

Returning to the Belorussian experiment as a new and more up-to-date form of cost accounting, we must note that this experiment also makes it possible to improve the management system, shapes effective relations between construction organizations and clients, increases immeasurably the requirements which have to be met by planning, organization and management of construction, and guarantees a high quality of construction [3]. A new form of local cost accounting within the construction project--subcontracting by construction teams--has become widespread in the industry. At the present time more than 440 construction teams in the ministry's system are working in accordance with this new form of settlement. The practice of introducing subcontracting by construction teams shows that its effectiveness depends greatly on the level of organization of work. Limitless prospects stand before the ministry and its organizations concerned with the problems of improving management in the 10th and 11th 5-year plans. Much remains to be done toward optimum location of the productive forces of the industry and solving the problems of scientific-technical progress, there is a need to study improved mathematical-economic models reflecting the dynamic processes of management on the basis of a comprehensive economic analysis using computer equipment, and to study the problem of efficiency and quality of construction work and to solve the problem of linking the OASU being developed by the Uzbek Ministry of Construction with the republic's computerized system and eventually with the nationwide system.

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7045
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONSTRUCTION MINISTRY HOARDS MATERIALS

Moscow EKONOMICHESKAYA GAZETA in Russian No 35, 1979 p 9

[Article by V. Kulikov, Member, Governing Board, USSR All-Union Bank for the Financing of Capital Investments: "Turnover Overturned"]

[Text] "What you've hidden is lost, and what you've given away is yours." This saying was cited in a letter from one of the weekly's readers, Vladimir Timofeyevich Shkabrov, who explained it as follows: "To me, hidden means concealed from friends and perhaps from oneself, unused in practical activities."

V. Shkabrov is the chief of the production process supply administration of Construction Trust No 13 in Bobruysk. It is with a heavy heart that he communicates cases of a careless attitude toward materials and equipment. As a rule compressors service just a single pneumatic drill, rather than four. The rolled metal employed is thicker than necessary because of a scarcity of economic profiles.

During a public inspection of production reserves Construction Trust No 13 was able to economize more than 100 cubic meters of lumber and over 70 tons of cement, and, as the letter states, "they became persuaded that the reserves were being discovered in the course of their...utilization, and that they were inexhaustible." It is unfortunate that this assertion has not become the norm in many other construction organizations of the USSR Ministry of Industrial Construction.

In a number of places thrift is defined as stockpiling a surplus of material resources or things that no one needs. The warehouse of Mobile Mechanized Column (PMK) No 117 of Karelsel'stroy Trust has been "aging" 46 cubic meters of paneling, 22 cubic meters of foundation blocks, 125 metal beds, and other treasures worth 15,000 rubles for 5 years. These articles will not become any better with time, and there is no telling when the builders will need them. The same goes for materials worth 17,400 rubles in PMK-85 of the same trust.

The executives of these subdivisions are following the "perhaps they may become useful" principle. Meanwhile businessmen in other organizations are sweating over the problem of where to get such slabs, blocks, and the like, and they are placing new orders.

The Belotserkovpromzhilstroy Trust has accumulated roofing felt, sealing compound, and various brushes worth 80,000 rubles. It would be nice for it to share its wealth with other trusts of Kievpromstroy Combine, but this is not happening. To them, a surplus is no loss. That is an incorrect point of view!

The economy suffers tangible harm from the removal of material resources from economic turnover. Rather than utilizing existing articles, we are forced to produce new ones. Valuable materials frozen in stockpiles become obsolete. With time, moreover, it becomes increasingly more difficult to keep them from spoiling.

Materials were stockpiled without supervision by the Nikolayevzhilstroy Trust's Production Process Supply Administration (UPTK), and valuable materials for which different people were responsible were stored in the same area. Things would have remained unchanged, had not "lightning struck." To put it more accurately, a fire caused a loss of 50,000 rubles. Poor surveillance by the trust and materially responsible individuals led to a bitter lesson.

There is no place to store unneeded materials, and there is no reason for doing so. But the stockpiles continue to grow larger. Carpentry articles stored under the open sky by the Zhilstroy and Promstroy-2 construction administrations of Zakarpatstroy Trust had to endure a test of strength in the face of the elements. The rain and the snow did not improve their qualities. Metallic piping of various diameters is rusting in construction administrations No 1 and No 2 of Glavomskpromstroy's Spetsstroy Trust, and reinforced concrete articles are lying on the damp dirt without wooden supports.

How do material valuables worth tens and sometimes hundreds of thousands of rubles become frozen in warehouse stockpiles? There are several causes. Premature acquisition of material resources is one example.

The Prommontazh Association of the Belorussian SSR Ministry of Industrial Construction acquired an instantaneous above-plan reserve worth half a million rubles when a year prior to the beginning of installation operations it accepted 1,800 tons of metallic structures from a Molodichno plant. It would not be imprudent to begin preparing your sled in summer, but it would be clearly premature to prepare it during one winter for the next winter.

Incomplete deliveries, where parts of secondary importance arrive first and cannot be put to use right away, also have an unfavorable effect. The trusts of the Kievpromstroy Combine are accumulating thousands of cubic meters of prefabricated reinforced concrete articles being delivered to them arbitrarily by Kievzhelezobetonstroykomplektatsiya and by the Brovary Plant Building Combine.

In a number of cases the actual demand an organization has for materials is not taken into account. At the beginning of this year the UPTK of Tulspetsstroy Trust had about 15,000 linear meters of ceramic piping in its possession. Nevertheless the UPTK ordered an equal amount more, and it received 9,300 meters. How much of the piping was laid? Only 5,300 linear meters--almost three times less than the UPTK had in the first place.

All of this attests to absence of reliable information on the reserves of materials held by organizations of the USSR Ministry of Industrial Construction. As a result difficulties arise at some construction sites, which experience a shortage of certain articles, while others must make additional unproductive outlays associated with frozen assets and with lengthy storage of unneeded and surplus materials.

Also of interest is the fact that the production reserves of the USSR Ministry of Industrial Construction as a whole increased by 21 percent in 1978, while the volume of work completed even managed to decrease somewhat. This trend is persisting into this year as well. Despite the requirement for placing material resources into economic turnover, the USSR Ministry of Industrial Construction is increasing its stockpiles.

Acquisition of materials for no good reason and presence of surpluses are placing construction organizations in a difficult financial position. In 3 years the amount still owed to suppliers for materials doubled for the USSR Ministry of Industrial Construction as a whole. The situation is especially unfavorable for Glavbashtroy (Ufa) and Glavzapaduralstroy (Perm').

The USSR Ministry of Industrial Construction is not demanding enough of its subordinated organizations, and it is doing little to see that they place their material resources into economic turnover. Thus while the USSR Ministry of Industrial Construction published an order spelling out the appropriate measures for the current year in January, the Azerbaijan Ministry of Industrial Construction did not react to it until March, and the Belorussian SSR Ministry of Industrial Construction and Glavzapaduralstroy responded even later.

It is time for the USSR Ministry of Industrial Construction to reexamine its attitude toward the important work of placing material valuables into the turnover.

11004
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PILOT PROJECTS SUFFER CUTBACKS

Moscow STROITEL'NAYA GAZETA in Russian 25 Nov 79 p 2

[Article by V. Yazykov, Assistant Chief, Main Sector Administration, USSR Ministry of Construction: "How to Achieve Stability"]

[Text] The authors of the articles published on the newspaper's first page are right: The things that happen to pilot plants must come from story books: Sometimes all that is left of them are the horns and the hoofs. Let me try to unravel the mechanism of these remarkable transformations.

A pilot plant's "amputation" begins as a rule with the client. If his funds are short he consciously reduces the estimated cost of the pilot plant, and owing to this "white lie" the figures for the main production operation agree with the planned figures, less those of the auxiliary services. Another variant is possible as well: The client has enough funds for the entire pilot plant, but he must include facilities required by other production operations into the plan. Once again he performs an "amputation."

The inevitable consequence of this tactic is chronic swelling of the estimated cost. Workers of our main sector administration are unable to remember even a single construction project for which the cost had fallen within the estimate stated by the client and the planners. The amount overspent is measured in enormous figures. As an example an extra 6.4 million rubles had to be spent on the ammonium phosphate complex of the Almalyk Chemical Plant.

Such overshoots cost us dearly. They interrupt the work rhythm, cause confusion in material and technical supply, and make it necessary to conduct one crash campaign after another. There can be no discussion of construction starts in such a situation. And wherever there are no construction starts, no work can get done. The builders, who themselves condemn the practice of "amputating" the complexes, are themselves forced to assume this road, thus encouraging the client to persist in his accustomed ways. How otherwise would they be able to complete their assignment, in the present situation as an example?

Last year about 4 million rubles were invested into the construction of the ammoniumphosphate complex of the Chardzhou Superphosphate Plant, which has an estimated cost of 34 million rubles, and yet this complex is supposed to go into operation this year. This naturally led to requests for reducing the cost of the complex. Such requests are also transmitted to the client when things are going poorly with material and technical supply. They meet the builders half way, and then we later find out that it is impossible to place the enterprise into operation without the facilities scratched off the project list. This is what excessive "amputation" could lead to!

Could it be that the pilot plants are not needed at all? No! Without them, we could not even discuss competent organization of construction affairs. But it is important for contractors to receive the plans for the pilot plant at the necessary time. Technical competency is a necessity of the plan, and it must invariably carry a guarantee of its stability. How do we achieve this?

First of all the planners must make it law that the composition of the pilot plant is inviolable; they must assume a principled position in this matter in regard to both the builders and the client. When reviewing the plan, the corresponding services of the USSR Gosplan must not trim the cost of pilot plants to their own capital investment limits, and they must specify the time that output capacities are to go into operation on the basis of the real work volume to be done. Client ministries take the right approach when they prohibit the planning organizations from making changes in technical documents published earlier.

It is much more difficult to put a halt to willful deflation of estimated cost. Here the blame lies not with the planners but with superior organizations--the ministries and associations. It is precisely on their instructions that the cost of pilot plants is fitted to the volume of capital investments.

It is rather difficult for builders to get the planners to coordinate the composition of the facilities with their actual cost. The only thing they can do is refuse to give their approval to pilot plants, which is not always to their advantage. Any delay in the planning can make it necessary to wait longer to sign the contracts and get the financing. As a result the builders must punish themselves, paralyzing their own production activities. They are forced to compromise with the client and approve the pilot complex in the variant advantageous to the client.

The USSR Stroybank could provide more help than it is providing today. On receiving requests for financing, its territorial offices must make sure that the cost of pilot plants is on par with the capital investments. But the sanctions they impose must not be limited to a refusal to finance a project, since it is the builder that consequently suffers while the party really to blame remains unharmed. The client is the one who must be punished first. It would be suitable to provide a loan to the builders for the time it takes to settle the financial questions, and the loan charge should be exacted not from the contractors but from the client.

Changes must also be made in the status itself of pilot plants. In particular we must make it a responsibility of the client to coordinate with the inspecting organizations on the pilot plant. The members of these organizations, who are also members of the state acceptance commissions, in many cases require performance of jobs and construction of entire facilities not included within the pilot plant. This raises heated arguments, which draw in the ministerial level to some extent. Preliminary coordination would of course not preclude debate, but at least the debate would occur in the beginning, rather than at the end of the construction, which would change things a great deal.

From my point of view we need to also make corrections in the composition of a pilot plant. Statement of just the assortment of facilities required is clearly not enough. The planners must also determine the work volume to be handled by different executors. This would help us to analyze the possibilities of different general contracting organizations better when writing up the plans. What am I referrinqto in particular? When it comes time to surrender output capacities and facilities for operation, we may find for example that gas supply lines, electric power transmission lines, and railroad sections, which are built on the basis of direct contracts between the client and the corresponding construction ministries--the USSR Ministry of Power and Electrification, the Ministry of Transport Construction, and so on, are not yet ready for operation. The composition of the pilot plant must necessarily contain these facilities, and the executives of the appropriate organizations must be made personally responsible for their construction.

I feel that by doing these things we can eliminate the faulty practice of "amputating" the pilot complexes, and that the plant operators would be able to assimilate the planned capacities of the enterprises more quickly. [96-11004]

11004
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

OVERWORKED CONSTRUCTION COMBINE LIMITS NEW PROJECTS

Moscow STROITEL'NAYA GAZETA in Russian 26 Oct 79 p 2

[Article by Correspondent O. Demenin: "A Gesture of Despair"]

> [Text] From a USSR Committee of Peoples Control report: "The Khmel'nitskpromstroy Combine's forces are distributed among 160 construction sites. The program for this year includes 475 objects, to include 329 new ones."

Khmel'nitskpromstroy was inspected to determine whether or not it was storing and utilizing construction materials sensibly. But let us try to look at the figures gathered together in the report from a slightly different angle.

An impressive work load, isn't it? Not every organization is capable of conducting 160 construction projects simultaneously, and of starting up more than 300 new ones. But the Khmel'mitskpromstroy Combine does not have the capability for handling such a work load either. Moreover the combine has been persistently suffering substantial problems for a number of years. Not once in the Tenth Five-Year Plan was it able to complete an annual construction plan.

Sensible business practice and plain common sense have shown to us that the money can keep rolling in only if production is subjected to sophisticated engineering preparation, if the production base is developed, and if progressive work methods are employed. One cannot raise the "ceiling" of an enterprise's income simply by working the keys of an adding machine. The obviousness of this thought cannot be doubted. Nevertheless the plan given every year to Khmel'mitskpromstroy is invariably filled with figures produced by such energetic grinding of an adding machine, figures that are occasionally abstract, having nothing to support them. The 1977 plan for the combine's growth in relation to its actual performance the year before was 50 percent, next year the growth required was 23 percent, and this year it is 39 percent. Such monumental figures! Especially if we consider that the actual average increment in the volume of construction and installation enjoyed by different sectors of our country's national economy does not exceed 4, 5, or 6 percent of the previously attained level.

Let us peek at the title list of construction approved for the combine, and see how its production program was formed.

Inspecting the list, we came across the malt plant in Slavuta. The client for this plant is the Ukrainian SSR Ministry of Food Industry. Responding to an order from the Ukrainian SSR Ministry of Industrial Construction the combine began building the plant in the middle of last year, though without a single page of planning and estimate documents. In April of this year the documents finally arrived. The combine's specialists immediately opened up the voluminous folders. And their bad premonition did not let them down: The plan contained deficiencies which they had long been used to seeing in such plans.

The busy client was in a hurry. He had acquired good imported equipment, and now he needed to have the shops finished as soon as possible. He managed to get the republic Gosstroy to issue a favorable expert evaluation of the plan (without the participation of the builders themselves!), and the ministry added the facility to the combine's plan without delay.

> From a Ukrainian SSR Gosplan report: "On the whole for the republic Ministry of Industrial Construction, as of 1 September 1979 80 million rubles invested into capital construction were not supported by technical documents."

Here is another graphic example of the way the plan is formed: There is talk of building a weaving and spinning factory in Starokonstantinov, but Khmel'nitskpromstroy does not have a single enterprise there that could do the construction. It is for this reason that we hear from the combine that it would take not less than 10 years to build the factory.

It stands to reason that the plan for the enterprise, which is itself based on an older single-story variant, one which would take a considerable amount of land out of agricultural production, would become irreversibly obsolete following such a long period of time.

There are still many unsolved problems having to do with construction in Starokonstantinov. Nevertheless the combine's plan for the next year already contains an investment of not less 6 million rubles for this facility.

In June the chief of the combine's planning department traveled to Kiev with the hope of solving the urgent problems. I. Botsman, assistant chief of the ministry's Main Economic Planning Administration, promised to see that a realistic plan would be approved for the combine for the next year, one within 52 million rubles. Not much later the republic ministry's economists went to the USSR Ministry of Industrial Construction for approval of this plan. What did they come back with? An added 10 million rubles.

> From a USSR Committee of Peoples Control report: "As of 1 January 1979 the total remainder of construction not finished by Khel'nitskpromstroy was equivalent to six annual programs of the combine."

"Nonetheless we would not have complained that even though we now have a large volume of work, new projects are being squeezed in," said Khmel'nitskpromstroy chief V. Bratash. "And in the end we find ourselves having to build the malt plant, the weaving factory, and all of those schools, residential buildings, and clubs that the city executive committee insistently asks us to build. All of these facilities are in fact necessary, but we must have some time to develop our own construction base!"

And in fact we find that the main deficiency of the plans furnished to the combine is neglect of development of its own production base. I should say for the sake of justice that the Ukrainian SSR Ministry of Construction Industry had released money to the combine for this purpose four times in the present five-year plan. All of this money has been spent, as was willed, on construction of a sand quarry and an asphalt handling facility.

How is the combine doing with the rest of its program for the development of its own "rear services"? It is centralizing the assets of its clients on construction of roads and temporary structures. The little money that has been available was used to build a small reinforced concrete structures plant in Kamenets-Podol'skiy, where production must go on under the open sky, to expand the house building combine in Khmel'nitskiy, and to rebuild some parts of the reinforced concrete structures plant in that city.

Meanwhile the combine, which has been forced to build large numbers of brick buildings, suffers an acute need for industrial structures. The degree of prefabrication here is 20 percent below that of the republic Ministry of Construction Industry as a whole, and it is correspondingly 13, 24, and 37 percent lower than for similar combines in Rovno, Poltava, and Simferopol'. By raising the level of prefabrication we could significantly improve the personnel problem at the combine as well, making it possible to create highly productive teams of assemblers to replace the present teams of masons.

> From a USSR Committee of Peoples Control report: "Presently Khmel'nitskpromstroy has an average of only nine workers for every construction project in its plan."

At the beginning of the present five-year plan the specialists of the combine's planning department took the initiative to visit Ukrainian SSR Deputy Minister of Industrial Construction A. Shchepetil'nikov and furnish him with a plan for development of the combine's base in support of the construction program. The deputy minister would not approve the plan, but he did promise to allocate assets for erection of a centralized reinforced concrete articles plant in Khmel'nitskiy with an output capacity of up to

200,000 cubic meters of prefabricated reinforced concrete per year. Three years have passed since that time. The combine has received neither the money nor the documents.

True, the ministry cannot spend its money foolishly. But why not at least send a competent commission to the combine, study the true state of affairs of the local construction base, write off the obsolete structures, and cover the shortage of prefabricated articles with products from enterprises of Ukrpromzhelezobeton?

The last episode in my history of the combine's problems with incomplete projects concerns a recent order published by the chief of the Khmel'nitskpromstroy Combine. It begins with List No 1, a list of the oblast's most important construction projects, to include a canning plant in the town of Kamenka, a tractor machine unit plant in Khmel'nitskiy, and an electromechanical plant in Kamenets-Podol'skiy. Resources may be channeled into construction projects of lower priority only after those above are completely supported by all of the manpower and materials they need. Work can now begin on new construction projects only on the basis of written instructions from the combine commission.

It is a gesture of despair. We can sense within it the resolve to fight whatever clients from the many ministries and even organizations above the combine in order to eliminate the abundance of incomplete projects. And I think that this gesture must be immediately supported by another from the USSR Gosplan, the republic ministry, and the USSR Ministry of Industrial Construction--that of balancing the construction plans against the resources available, and developing the industrial base of construction preferentially.

11704
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CONSTRUCTION QUALITY CONTROL SYSTEM INTRODUCED

Moscow NA STROYKAKH ROSSII in Russian No 7, 1979 pp 16-19, 61

[Article by M. Gotgil'f, Chief, Quality Control Section, Orgtekhstroy Trust, Glavzapstroy, and R. Valitov, Senior Specialist]

[Text] See the following issues for articles on the experience of developing and introducing the elements of the integrated construction quality control system:

In the Russian Federation--Main Administration for the Housing, Civil Engineering, and Industrial Construction of the Leningrad City Executive Committee (No 6, 1975; No 4, 1976; No 10, 1977; No 2, 1978); Glavprivolzhskstroy [not further identified] (No 8, 1975); Glavlipetskstroy [not further identified] (No 9, 1975; No 8, 1976); Glavzapstroy [not further identified] (No 10, 1975; No 2, 10, 1976; No 7, 10, 1977); Main Administration for Construction in Moscow Oblast (No 6, 9, 1976; No 10, 11, 1978); Main Administration for Housing and Civil Engineering Construction in Moscow City (No 7, 1976; No 5, 12, 1977; No 5, 11, 1978); Glavarkhangel'skstroy [not further identified] (No 1, 1977); Glavsochispetsstroy [not further identified] (No 8, 1978); Glavsreduralstroy [not further identified] (No 11, 1978); Ministry of Construction of Petroleum and Gas Industry Enterprises (No 11, 1978); Voronezh TUS [not further identified] of the USSR Ministry of Construction (No 2, 1979);

in other union republics--Kazakh SSR (No 8, 1976); Latvian SSR (No 2, 1977); Ukrainian SSR (No 3, 1977; No 11, 178); Moldavian SSR (No 4, 1977); Estonian SSR (No 6, 1977); Lithuanian SSR (No 8, 1977); Belorussian SSR (No 9. 1977); Uzbek SSR (No 1, 1978).

See the following issues for articles on methods for evaluating quality and for revealing the reserves for raising it, and on quality control instruments: No 3, 7, 9, 10, 1975; No 2, 5, 11, 1976; No 12, 1977; No 3, 7, 9, 12, 1978; No 1, 1979; No 4, 1979; No 5, No 6, 1979.

Construction quality is being raised in Glavzapstroy organizations on the basis of a zero defects work system. In 1973 the main administration approved the Statute on Organizing Zero-Defect Work and Technical Quality Control of Construction and Installation Jobs at Construction Sites of the Glavzapstroy, the order of introducing this system into all trusts and DSK's [house-building combines] has been established, the quality control group of the Orgtekhstroy Construction Trust has been awarded the rights of a technical inspection office, and the responsibility of providing methodological guidance to this work has been assigned to it.

The essence of the system is not to document deviations from plans and from technical standard-setting documents in the performance of construction jobs, but to create conditions guaranteeing the performance of such jobs in strict compliance with the requirements of the standards. It is based on daily acceptance of jobs from executors by a foreman or by another supervisor with a quality assessment. A quality control engineer is assigned to each construction organization's production-technical section in order to monitor evaluation correctness and objectivity. Whenever an inconsistency is discovered between actual work quality and its evaluation, he must explain the error to the executors and the line engineers and technicians, and correct the evaluation.

Job payment orders are submitted to the accounting office together with the quality control engineer's permit, and the bonus is computed depending on job quality: It is 3 percent of the total piece wage for a grade of "excellent," 2 percent for a grade of "good," and 0.5 percent for a grade of "satisfactory" for each percentage point reduction of the job completion time set by the standard. Moreover the evaluation depends not only on how the work was done but also on following which submission it was accepted--the first, the second, or the third.

In 1975 the Orgtekhstroy Trust organized an industrial enterprise construction and production quality control section under its central construction laboratory; this section contained two quality control groups--one for construction and one for industrial production, and two laboratories--one for construction materials and one for polymers. Thus a unified quality control system was created in the main administration (see Table). However, while construction quality depends on the quality of the plans and the materials employed in addition to the quality of construction and installation, the system considers only the latter.

Construction and Installation Quality Control System in Glavzapstroy

Subdivision	Executors	Functions in the Quality Control System
Team	Worker	Quality self-control
	Team Leader	Monitors compliance with production discipline and fulfillment of construction and installation jobs in accordance with the requirements of the plan and the technical standard-setting documents
Section	Foreman	Checks compliance with job procedures; maintains operational control over job quality and over daily acceptance of jobs from executors with a quality evaluation
	Section chief	Monitors systematic performance of operational control by foremen
Construction Administration (Construction and Installation Administration, PMK [not further identified])	Quality control engineer	Assists in the system's introduction; checks management of work documents; monitors correctness of job acceptance by foremen and objectivity of quality evaluation of construction and installation jobs made by them
	Geodesist	Performs geodesic jobs during construction and installation operations, sets up executive schemes of geodesic control, monitors the condition of geodesic instruments
	Chief Engineer	Conducts "Quality Day" in the construction administration; checks performance of operational control; organizes advanced training for engineers, technicians, and workers
Trust	Laboratory Chief	Provides methodological guidance and controls the work of the construction administration's (construction and installation administration's, PMK's) quality control engineers; performs, through the facilities of the laboratory, selective and inspector's control of construction and installation job quality, and initial control of materials, articles, and structures; organizes advertising
	Technical Section Chief	Monitors timeliness, quality, and completeness of incoming technical documents

	Chief Process Engineer	Monitors timeliness and quality of work plans, and compliance with construction procedures
	Chief Geodesist	Provides methodological and technical guidance and control to geodesic jobs performed in the trust's organizations
	Chief Welder	Insures a high technical level and high quality in the trust's welding jobs
	Chief Engineer	Controls the quality of construction and installation jobs via the technical services and conducts "Quality Day"
Glavzapstroy	Construction Trust Quality Control Group	Provides methodological guidance to and checks activity of subordinated quality control services, maintains selective and inspector's control of construction and installation job quality
	Orgtekhstroy (departmental technical inspection office)	
	Chief Geodesist	Provides methodological guidance to and monitors the activities of subordinated services; provides tools, instruments, and other materials; organizes repair of geodesic instruments
	Technical Administration	Checks to see that plans and estimates are provided to all construction projects stated in the plans of the current and following year; develops and monitors introduction of progressive construction procedures; monitors construction quality
	Deputy Chief (Chief Engineer)	Coordinates construction quality control functions, prepares quality control results for examination by the main administration's governing boards and conferences

It should be noted that about 150 organizations located in different cities of the country do the construction planning for the main administration. Leningrad planners do not do more than 35 percent of the jobs. It would obviously be suitable to concentrate work on the bulk of the plans in the Leningrad institutes, which would help to strengthen the ties between builders and planners, to insure more-workable plans, and consequently to raise the quality of the construction process itself.

The quality of widely used materials and articles produced by the main administration's industrial enterprises noticeably improved in the last 2 or 3 years. However, some of them still elicit valid complaints from the builders. Initial control of their quality in the construction trusts and the handling of complaints against organizations delivering poor-quality products are obviously still inadequate, and the scarcity of a number of construction materials (bricks in particular) is reducing the effectiveness of economic sanctions.

The quality of Glavzapstroy's construction industry is gradually rising as well. About 65 percent of its total production volume has been certified as being in the top quality category. Production of new, more effective and economical structures and articles is being assimilated.

The complex of organizational and technical measures being implemented is making it possible to surrender 80-85 percent of the construction projects to the clients with grades of "good" and "excellent," and in some trusts this indicator has remained stable at the 90 percent level for a number of years.

In 1977 the Glavzapstroy created a coordination council for development of the KS UKPP [Integrated Industrial Production Quality Control System] and the KS UKSP [Integrated Construction Production Quality Control System], and it has assigned introduction of quality control to four principal organizations--Order of Lenin trusts No 36 and No 37 of Leningradspetsstroy [not further identified], the Tikhvin House-Building Combine, and the Pikalevo Reinforced Concrete Articles Plant of Trust No 61. The Orgtekhstroy trust has been given the responsibility of all organizational-technical and methodological work concerned with developing the KS UKP [Integrated Production Quality Control System].

An analysis of the activities of the principal organizations has established the factors influencing the quality of construction and installation jobs and of industrial products, and measures for improving quality have been spelled out; guarantee certificates and responsibilities applicable to residential buildings being surrendered for operation have been introduced.

Standardization and metrology services have been created in all of the main administration's subdivisions, statutes on construction and industrial production quality technical inspection offices have been prepared and approved, and a standard statute on the technical control section of a Glavzapstroy industrial enterprise has been written and approved.

More than 100 operation control schemes have been created anew, to include ones concerned with general construction, trimming, the laying of external water pipeline and sewage networks, construction of motor highways, and so on. Executive technical document forms have been published in large numbers.

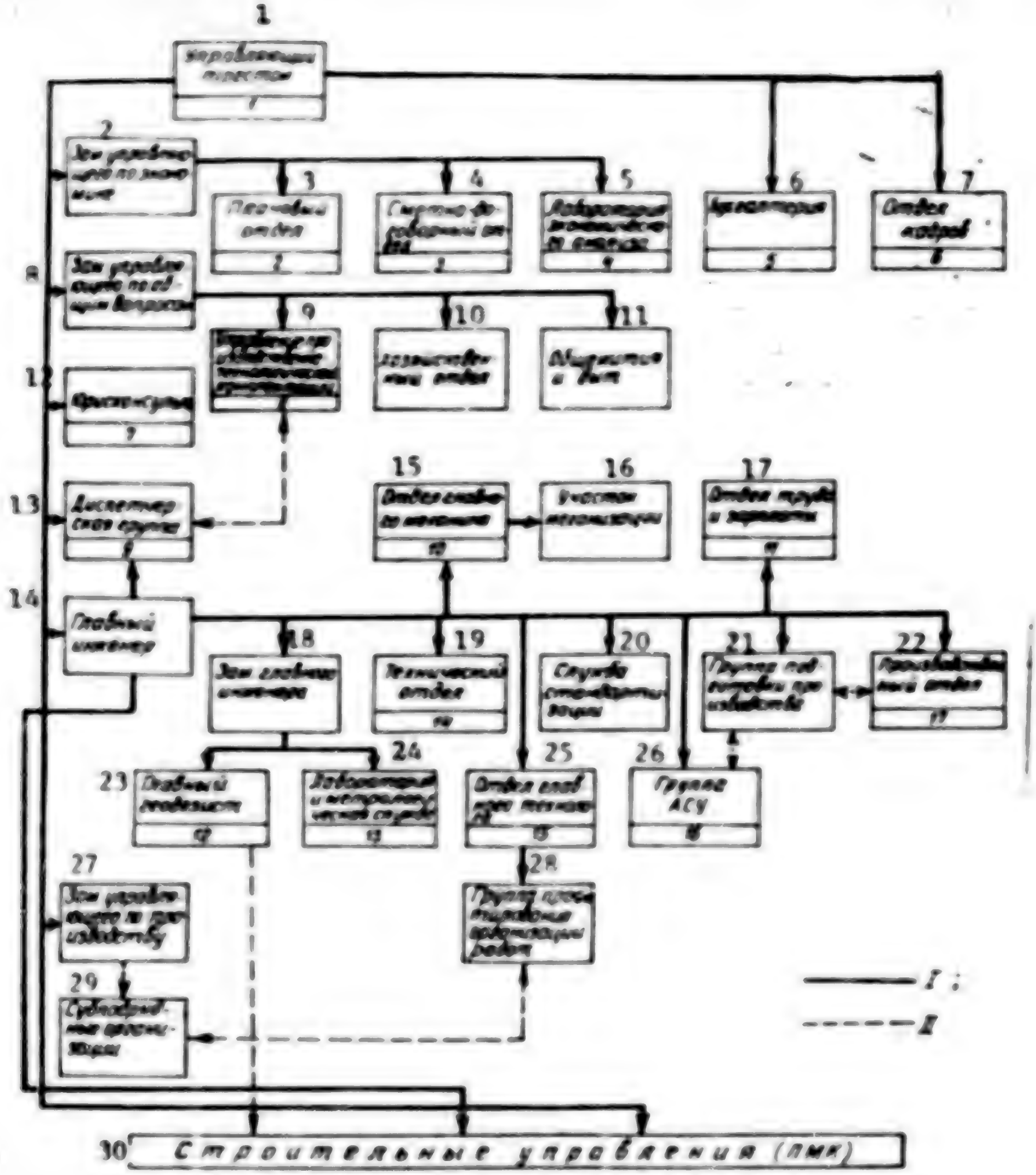
It was decided on the basis of the theoretical and practical work done to place the Saratov zero-defect work system and the L'vov standardization system at the basis of the main administration's KS UPK. In order to attain broader introduction of the KS UPK, the Orgtekhstroy trust furnished all organizations of Glavzapstroy--trusts, DSK's, SSK's [not further identified] and construction industry enterprises--with the principal materials concerned with its introduction, to include directives on the writing, approval, and registration of enterprise standards; working jointly with the organizations principally responsible for the system's introduction, the trust established, for each of these organizations, a technical assignment for developing the KS UKP plan in correspondence with recommendations, approved by the USSR Gosstandart, on developing and introducing an integrated production quality control system. Such as assignment contains a list of enterprise standards (STP's) on quality control functions to be written, with the deadlines and responsible executors indicated; it also contains a plan of measures for raising the organizational-technical level of the enterprise, written on the basis of an analysis of quality at the enterprise or in the construction organization.

Then the main standard, "Integrated Production Quality Control System. Fundamental Premises," was written for each of the four principal organizations. This standard provides a description of production and of the products manufactured in greater detail than in the technical assignment. This standard suggests a structural scheme for the enterprise (organization), indicating the functions to be performed by subdivisions and officials, and the subordination relationships. Finally, the standard indicates the order of coordinating activities within the quality control system, and the officials involved. The section "The Content of Enterprise Standards" provides a detailed list of STP's and their serial numbers.

While preparation of technical assignments and the main standards for all of the four principal organizations followed the same scheme despite the specific differences in their production operations, methods accounting for the individual features of each of them had to be selected when developing the general and special STP's.

Thus at the Tikhvin DSK special attention was devoted to developing statutes concerning evaluation of the quality of work done by the laborers, and concerning zero-defect article manufacture--that is, the experience of introducing a KS UKP into House-Building Combine No 3 of Glavmosstroy and the Tallin House-Building Combine of the Estonian SSR Ministry of Construction was utilized in optimum fashion.

Efficient organization of all forms of departmental control occupies the main place in Trust No 36: Quality control of technical documents, initial quality control of materials and structures, operational quality control of construction and installation jobs, and laboratory, geodesic, and inspection office control, combined with objective evaluation of the work quality of executors, and moral and material stimulation. The following forms of rewards for high quality work are foreseen in this case:



Structural Diagram of a General Construction Trust and the Distribution of Functions in the Quality Control System: I--Administrative subordination; II--methodological guidance; *1*--overall guidance to development and introduction of the KS UK SMR [integrated construction and installation job quality control system]; *2*--plans SMR [construction and installation jobs] quality indicators and the measures for maintaining quality; determines actual economic effectiveness of the KS UK SMR; *3*--provides legal support to SMR quality; participates in initial quality control of planning documents; handles complaints; *4*--determines and analyzes the causes of losses; *5*--accounts for and analyzes the trust's outlays on correction of defects and compensation of waste in each administration, section, and construction site, and takes steps to compensate for such outlays; *6*--selects, places, and trains personnel; *7*--resolves disputes concerning complaints; *8*--material-technical supply to construction sites at prescribed times; organizes initial quality control of parts, materials, and articles supplied by other organizations; provides quality measuring and monitoring resources to the construction sites; monitors compliance of the transportation service with shipment rules; *9*--provides operational guidance to the distribution of transportation and construction machines; *10*--provides machines, mechanisms, and gear to construction sites; *11*--organizes zero-defect work; develops scientific organization of labor and progressive forms of material stimulation of laborers, engineers, and technicians in relation to SMR quality; *12*--provides geodesic support to construction; *13*--performs jobs as stated in the statute on laboratories; develops and introduces measures concerning the KS UK SMR; monitors SMR quality; provides metrological support to SMR; *14*--initial quality control of planning documents; provides technical standard-setting literature to all subdivisions and services; *15*--manages the preparation of construction production; insures growth in quality through improvement of SMR processes; *16*--collects, processes, stores, and utilizes SMR quality information; *17*--monitors maintenance of a high technical level in construction; coordinates the order of completion of jobs by different executors.

Key:

1. Construction trust
2. Assistant trust director for economics
3. Planning section
4. Estimate and contract section
5. Economic analysis laboratory
6. Accounting office
7. Personnel section
8. Deputy trust director for general problems
9. Production-technological support administration
10. Administrative section
11. Residence halls and personal services
12. Legal consultant
13. Dispatcher group
14. Chief engineer
15. Chief mechanic's section
16. Mechanization section
17. Labor and wages section
18. Deputy chief engineer
19. Technical section
20. Standardization service
21. Production preparation group
22. Production section
23. Main geodesist
24. Laboratory and metrological service
25. Chief process engineer's section
26. Automated control system group
27. Deputy trust director for production
28. Job organization planning group
29. Contracting organizations
30. Construction administrations (PMK)

a) payment of bonuses to teams, units, and individual workers for completion of jobs within the time foreseen by the job order, the amounts being: when accepted upon the first submission with a grade of "excellent"--30 percent, and with a grade of "good"--25 percent of the total wages for the order; this form of bonus payment is not used when jobs are accepted upon the second submission (with a grade of "satisfactory");

b) payment of bonuses to teams, units, and individual workers for every percentage point that the standard time is reduced, the amounts being: when the work quality is evaluated as "excellent"--3 percent; "good"--2 percent, and "satisfactory"--0.5 percent of the total wages for the order.

When the work quality grades are "good" and "excellent" bonuses are paid concurrently as specified in paragraph "a" and "b", though in this case the total amount of the bonus may be up to 40 percent of the total wages for the order. When the work quality grade is "satisfactory" a bonus is paid only for reducing the standard time, and in this case it cannot exceed 15 percent of the total wages.

Payment of bonuses to line engineers and technicians and to construction administration executives is also regulated depending on work quality.

In Trust No 37, the main emphasis is being placed on writing standards pertaining to special jobs for which the procedures are not reflected in the Construction Norms and Specifications--in particular, the laying of various drainage systems and asphalt-concrete surfaces, the laying of pavement stones, and organization of standard outfits of tools for individual operations.

From 15 to 20 general and special STP's have been approved as of now for each of the four principal organizations.

Certain elements of the integrated production quality control system are also being introduced by other organizations of the main administration; in this case the main emphasis is being placed on organizing the different forms of control and on utilizing progressive forms of stimulation.

Finally, the Gatchina DSK is working with several scientific research institutes to introduce an integrated automated quality and production control system (KS AUKP) based on an M-6000 computer supported by peripheral software; enterprise standards are the organizational basis of this system as well.

It is still difficult at the moment to determine the actual economic effectiveness of introducing the KS UKP into Glavzapstroy, but the initial figures show that the savings enjoyed in the first year by construction organizations from reducing the losses by decreasing waste will be from 1,000 to 5,000 rubles per million rubles of construction and installation jobs performed by their own resources, or 25,000-50,000 rubles per year, coupled with a decrease in labor outlays of about 200 man-days per million rubles of SMR.

There are grounds for expecting that the impact will be much greater when the system develops further. We can gain an indirect impression of this impact from the decrease enjoyed in construction costs (of course, taking account of other factors influencing it as well).

Just the little experience already accumulated in the application of organizational-technical STP's has shown that these standards do make it possible to organize mutual relationships among sections and services in different organizations, to accelerate document turnover, to expedite the handling of complaints, and to raise the responsibility of each worker toward the performance of his job, and the attention of the entire collective toward the problems of raising production quality.

However, there are a number of problems concerned with introduction of the KS UKP which the main administration cannot solve on its own. We need to develop procedures for objective quantitative evaluation of the quality of particular construction and installation jobs, as well as of buildings and structures as a whole, since the instructions approved by USSR Gosstroy in 1977 for evaluating the quality of construction and installation jobs do not spell out such procedures. There is an extremely great need for standard statutes on departmental quality control services and technical quality inspection offices, and on their structure, rights, responsibilities, standard manpower, and sources of financial, material-technical, and transportation support.

Positive solution of these problems would help us to raise the quality of construction as a whole in the country.

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11004
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MOSCOW'S BUILDERS OF UTILITIES, SERVICES FAVOR NEW PLANNING SYSTEM

Moscow MOSKOVSKAYA PRAVDA in Russian 3 Oct 79 p 2

[Article by G. Yermonskaya: "The Final Result"]

> [Text] Socialist competition where planning for the introduction of facilities and the construction commodity output guides builders more effectively toward the final result.
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> The party and government decree, "Improvement of Planning and Intensification of the Effect of the Management Mechanism on Increasing Production Effectiveness and Work Quality," was intended to make the introduction into operation of finished jobs, construction commodity output, and growth of labor productivity and profit the main indicators for evaluating the activity of construction organizations. Glavmosinzhstroy [Main Administration for the Construction of Engineering Structures in Moscow City] has been working for 2 years under such a planning system, and no little experience in operating under the new conditions has been gained here.
>
> Below is an account of how socialist competition became more active under the new planning system.

The new evaluative indicators have entailed deep examination of all aspects of Glavmosinzhstroy production activity. But their effects have not been limited to just the economics sphere. They also have influenced the attitude of people toward the work and sharply raised the personal responsibility of each construction worker, and especially of construction-project managers, for his portion of the work. Planning from below has found new effectiveness. The initiative of brigades, sections and construction administrations is predetermining the fate of the plan, work deadlines and the potential for fulfilling socialist commitments.

Each specific collective has been enabled to compute with precision all economic indicators prior to undertaking construction of the next structure. This gives a realistic base for promoting broad socialist competition.

Here is an example. A new, underground pedestrian underpass was turned over for operation recently at the Prospekt Mira subway yard. It was built in 3 months instead of the 8 months planned. What factors led to the success? A well-thought-out economic mechanism, precise organization of the work and active socialist competition. The time taken to build the facility, which cost 675,000 rubles, was sharply reduced. Under the new terms for planning, a time reduction of more than 30 percent increases the bonus fund by 50 percent. And this is not all. Introducing a facility into operation ahead of time reduces by 0.5 percent the amount the builders pay for the bank credit extended them for doing the construction. This seemingly small half percent of interest actually amounts to 3,000 rubles, and not the 6,000 if the underpass had been introduced on time. Thus, even before the start of the construction project, the amount that people will receive for introducing the job ahead of time can be figured accurately. Thanks to the prescheduled introduction, the material incentive fund will be 17,200 rubles instead of 11,500 for introduction on time.

Thus economic stimuli have found concreteness and have become accessible to all--from workers and brigades to construction administration chiefs and trust managers. This has enabled elimination of the still oft-encountered formalism in organizing competition. Previously, socialist commitments specified jobs that had already been carried out by half or did not require major exertion of effort. Now commitments are directed at the most rapid possible introduction of specific jobs, and the brigades know that everything depends upon them, that no one will transfer them from "their" jobs to other ones. The people have a precise target and they know how their work will be paid for, and whether the goal will be reached on time or ahead of time.

But not everything should be reduced to a material incentive. The construction workers' moral satisfaction from precisely organized, inspired labor is of enormous importance. There was all of this, for example, during construction of the underpass on Prospekt Mira. And there were flights of workmanship, the overfulfillment of output norms, and special fervor in highly professional work, when people were striving to prove that now they can do that which previously was not within their powers. And there was also the feeling of equal responsibility of all construction project participants for the most rapid completion thereof.

The new terms for planning have imparted a strong impulse to the introduction of the brigade contract. It must be said that prior to the experiment it was being introduced with difficulty. The dispersion of jobs, the frequent redeployment of brigades from one job to another, and the lack of coordination with equipment operators did not, as a rule, make it possible to bring the contract to a conclusion. The planning of commodity construction output has radically changed the situation. In order to carry out plans under the new indicator, a high level of work organization, mutual responsibility of brigades and of construction subunit management, and the precise provisioning of supplies and equipment are required. The Zlobin method has proved to be most effective where work is being done under the new evaluative indicators. This year work volume carried out by the brigade contract method will reach 40 million rubles. This is triple that at the start of the experiment. On 1 August, 159 brigades in the main administration were working under this method, and by the end of the year their number will be brought up to 225. In the first half of the year economically accountable brigades overfulfilled the plan goal for output per workers by 12.5 percent and reduced the cost of construction and installing operations by 401,000 rubles, or by 2.8 percent.

The Glavmosinzhstroy collective's socialist commitments for this year called for the introduction into operation of a large number of engineering structures of citywide significance. These were the preparation of utilities for the new housing rayons of Mar'ino and Strogino, the road from Orekhovo-Borisovo to the Tsaritsyno way station, a pedestrian sidewalk across Dmitrovskoye Shosse, and a tank for storing 4,000 tons of cabbage in Moscow Oblast. Some of the jobs have already been put into operation. Traffic on two Olympic road-construction jobs have been opened up--Valovaya Ulitsa and the left side of the Leningradskiy Prospekt thoroughfare. The fulfillment of such large amounts of work ahead of schedule has become possible thanks to the great concentration of forces and resources at jobs due for startup and to well-thought-out organization of competition.

This year Glavmosinzhstroy is conducting the second stage of the economic experiment. Its essence is not only the timely introduction of facilities into operation but also operation with a profit and the achievement of full reimbursement. These tasks are to be resolved at the level of each brigade and each construction administration. To work without lagging is becoming the main indicator that socialist competition is being called upon to help achieve. The results for 7 months indicates convincingly that this task has been carried out. All subunits of the main administration have without exception carried out the plan with their own forces. The brigades of D. Makayev from Mine-Driftwork Trust No 3, I. Shvedov from Mosgorgidrostroy [Moscow State Trust for the Construction of Urban Hydraulic Engineering Structures], and Yu. Kas'yanov from Mosinzhgidrostroy [Moscow Trust for the Construction of Utilities-Type Hydraulic-Engineering Structures] are in charge of the competition this year, and all the others are equal to them.

It must be noted that the very content itself of the concept of a "laggard" construction organization has now been changed. Previously, a trust or administration that simply fell short of the celebrated "gross" was a laggard, those that exceeded the "gross" were advanced organizations. Now the main evaluative indicators make it necessary not only to introduce jobs on time but also to work profitably. What is the price of an object that has been introduced? This is first considered when summing up the results of socialist competition, and it has a disciplining effect with regard to the use of building materials and of one's own working capital.

It is characteristic that the new approach to the evaluation of competition results has changed the standing of the main administration's trusts on the bonus ladder. Those organizations that previously did not "reach for the stars in the sky" but stubbornly sought out causes of interruptions of the program for introducing jobs began to come out ahead for the first time. This is what happened, for example, with Gordorstroy [City Road Construction

Trust] No 3. Its collective right now, as never before, has aimed at introducing facilities. And it is no accident that it is in this trust that M. Lazarev's brigade came out with the initiative, "Larger volume with less manpower." This initiative became the tool that the workers themselves found for solving new tasks that were set for them by the experiment.

The traditional initiatives under the new conditions have become better fortified by concrete economic work, so increasing numbers of brigades are supporting them. In the main administration's organizations 89 integrated brigades, 9 teams, 10 large construction sections and 322 equipment operators are driving to fulfill the five-year task by the 110th anniversary of V. I. Lenin's birth. Especially great successes were achieved here by the brigades of V. Petin and I. Kuchin from Gordorstroy Trust No 1, N. Khrustalev's brigade from the Trust for the Construction of Quays and Bridges, and other brigades.

Participating in the movement for a communist attitude toward work are 17,990 people of the main administration; 10,620 builders among them have become recipients this year of the title Shock Worker of Communist Labor. The initiative, "Larger volume with less manpower," was supported by 267 brigades with a total manpower of 2,640 persons; they released 380 persons from their ranks, as a result of which an additional 65 brigades and teams were created.

Thus, under the new conditions for planning, which, in accordance with the party and government decree named above, should now become general for all builders, socialist competition is coming to a qualitatively new level, sharply intensifying activity and accelerating the achievement of the final national-economic results.

11409
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONCRETE-PANEL PLANT'S POOR BEGINNING

Moscow STROITEL'NAYA GAZETA in Russian 14 Nov 79 p 2

[Article by correspondents V. Pankratov and G. Pekarskiy, Kiyevskaya Oblast: "They Themselves ..."]

[Text] We were driving into Gavrilovka in Vyshgorodskiy Rayon in Kiyevskaya Oblast, where the Berezan' Rural Housing Construction Combine is erecting the first large-panel houses. An infallible landmark leads us to the site--two tower cranes standing prominently over the rural landscape. But the cranes are standing motionless, except for the slings hanging from the hooks that swing slightly in the wind. This is the third day that the panel-carriers have not arrived from the plant. Nor is this an accident.

"Who benefits from this kind of operation?" Vladimir Luk'yanchuk, foreman of the assembly crew, says with bitterness. "It is not enough that the plant has had lapses in supplying the construction project with needed materials, the quality of the products is also low. The panels arrive with large cracks and corners broken off. Grades are mixed, dimensions are not held to, and the parts to fasten it to the foundation are not in the right place. About 20 percent of the fabrications are rejected."

Luk'yanchuk also complained that a remote site was chosen for building the first house. After all, it is 150 km from Gavrilovka to the plant of the KPD [combine for fully prefabricated housing].

The day before we had been in Berezan'. We arrived at the rural housing construction combine at the time its chief S. Oskoma had set for a production conference (operativka). We came to hear what the personnel of the staff services and shops would propose for improvement of production. But it turned out that the conference was called for another reason: there had been an accident in the warehouse. The cover of a pump had been broken off, and about 20 tons of cement went into the engineroom....

The Berezan' SDSK [Rural Housing Construction Combine] is the first of its kind in the Ukraine. Its rated capacity is 100 square meters of housing per year. This committed the combine Kiyevsel'stroy and the Ukrainian Ministry of Rural Construction to show maximum responsibility toward construction and to prepare thoroughly for operation. Neither was done. The enterprise was built with defects and put into operation with unjustified haste. Moreover, the rural housebuilders actually had no standard designs. That is why the Berezan' combine is making an exception and using the design of five-story buildings in erecting the first four-story houses of the modernized Series 94.

But since the SDSK has been accepted for operation and assigned a program to complete 22,000 square meters of housing this year, it must operate and pay for itself. More than that: the combine is on a unified construction balance sheet. It must render accounts in terms of square meters of housing and it is to receive money for finished houses. But there are neither square meters nor finished houses. Nor, of course, is there any money from the client, though in Gavrilovka construction and installation work valued at 97,000 rubles has been done.

"Nothing is being received, everything is falling behind in every sector," S. Oskoma complains. "Yet we can blame no one but ourselves. We accepted the plant without testing the equipment."

They carefully conceal this fact in the combine Kiyevsel'stroy. But it would seem that S. Starovoytenko, chief engineer, ought to know that the housing construction combine received a loan of 608,000 rubles for startup and adjustment work this year, i.e., after the certificate of the state commission had been signed.

The difficult situation at the plant was also compounded by the fact that in January, when the plant was accepted, it had a staff of 16 people. It proved to be no simple matter to recruit specialists in a rural locality. That is why they hired those "at hand." Only in mid-March did materials go onto the assembly lines, and then it was found that not a single form met the standard. They called up the specialists and teams of fitters from the manufacturing plants to correct the defects on the spot. For 2 months the patternmaking shop was turned into a metal manufacturing shop.

Finally, the jigs and fixtures were put into shape, and molding began. Then the "surprises" came one after another. Everything that had been overlooked in the design or installation of the equipment began to come to the surface. The trestle used for hauling up the concrete and the vibrating table had to be rebuilt. Breakdowns began in the slit-type steam curing chambers.

The managers of the SDSK consoled themselves: the kinks would be smoothed out in time, they were not the only ones to have a difficult beginning. They also found a justification: the plant, they said, had been designed and the equipment ordered for Series 26 houses, not Series 94. This is why everything did not go as it should in the manufacturing process. But the principal reason still has to be seen in the lack of exactingness in the engineering which was shown in the course of construction by the client--the combine Kiyevsel'stroy--toward its contractor--the combine Kiyevsel'stroy.

We will back this up with an example. Underground utility lines had nothing to do with the change in series. But the steam line from the boiler room to the main building failed. The pipes of the sewer main settled and burst.

It would seem that in a situation where the client and contractor are one and the same entity, the state commission, which was headed by N. Pyl'nikov, Ukrainian first deputy minister of rural construction, ought to be particularly exacting. But it closed its eyes both to the defects in construction and also that the installation of equipment was done "selectively." For example, in the cement warehouse they did not install the transfer pipes on the silos, the ducts to take dusty air from the silos and pump chambers to the filters, nor the system for regeneration of the filter bags. As a consequence the dust concentration in the engineroom exceeded the standard 280-fold. People worked in gas masks. The pump repeatedly broke down and had to be stopped every 30 minutes. The culmination of this was the accident already mentioned.

This cold indifference on the part of the combine Kiyevsel'stroy and the Ukrainian Ministry of Rural Construction toward its own offspring--the Berezan' SDSK--has been paid for by extensive loss of morale in the work force of the combine. The material losses to the state have also been tremendous: correction of defects and completion of work left undone brought the cost of the 20 dwelling units assembled to 1.5 million rubles--75,000 rubles per unit. Isn't this expensive?

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STRUCTURAL CHIPBOARD TECHNOLOGY FOUND WANTING

Moscow STROITEL'NAYA GAZETA in Russian 24 Oct 79 p 2

[Article by special correspondent O. Pakhomova, Penza--Moscow: "Finding a Way Out of the Labyrinth"]

[Text] What a fine effect was made by this two-story Swedish cottage that fit so well into the autumn interior of the Sokol'niki Park--with its lace-like openwork of the window frames, the wooden front porch, and the facade's cheerful combination of colors! This exhibit at the recent international exhibition "Lesdrevmash-'79" [timber and woodworking machinery] was very popular with the public. You had to wait in line quite a while to get a look inside the rural cottage and to see that the conveniences here are equal to those in the city: spacious insulated rooms, hot water in the kitchen and bath, a toilet, a pantry, a cellar and utility room so necessary to the peasant, and a workroom set aside for the housewife.

It brought to mind at the exhibition other cottages designed on the Swedish model and built by the Chaadayevka KPD [Combine for Fully Fabricated Houses] in Penzenskaya Oblast. How strikingly they differ from one another! Not only in the layout, but also in the way the exterior is done. But if you are aware of the difficulties encountered by the pioneers of Soviet large-panel wood housing construction this elegant Swedish cottage no longer seems so alluring....

Yes, we purchased several Swedish plants for the manufacture of rural houses from waste wood. And at the end of 1977 two of them--the Livany Experimental Housing Construction Combine in Latvia and the Chaadayevka KPD in RSFSR--went into operation. The estimated cost of the enterprises was not inexpensive to the state, to put it frankly. But what was the return?

The Livany and Chaadayevka combines, which have a capacity of 2,000 cottages, last year delivered 76 and 126 buildings, respectively, for occupancy. By now they have at best succeeded in doubling these figures. The enterprises are unprofitable. For example, the Chaadayevka KPD last year brought the state more than 2.5 million rubles of losses.

Why is this happening? At the time when the equipment was purchased the country had no technology for the production of structural wood chipboard [DSP] needed for housing construction. Nor was there a method for calculating frame construction using it. And though quite a bit of time has passed since then, these problems have still not been solved.

At present every combine is finding its own way out of the situation. For example, the Chaadayevka KPD is obtaining wood chipboard from a local plant designed to manufacture boards for the furniture industry and by no means for housing construction. This winter is showing that they are by no means the same thing, since cracks and leaks are appearing in many of the cottages built.

Clients and builders have sounded the alarm. Immediately the general designer--the institute Mosnechernozemindustproyekt (MosNIP) [(?) Moscow Institute for Design of Industrialized Buildings for the Nonchernozem Zone], specialists of TsNIISK [Central Scientific Research Institute of Structural Fabrications] imeni Kucherenko, VNIIDrev [All-Union Scientific Research Institute of the Woodworking Industry], the Penza Construction Engineering Institute and others began comprehensive inspections of the buildings which had been erected. It was found, first, that the chipboard did not meet the requirements of the design with respect to density, water resistance or bending strength, and on the whole is not suitable for use as a load-bearing element of a house. Second, the resin used in manufacturing the DSP contains considerably more unbonded formaldehyde than envisaged by the GOST [state standard].

The latter circumstance gave rise to serious complications which rural builders had with physicians. This June R. Khalitov, deputy chief state public health physician of RSFSR, informed the managers of the association Penzakolkhozzhilstroy [Penza Kolkhoz Housing Construction], of which the Chaadayevka KPD is a part, that the wood chipboard developed by TsNIISK imeni Kucherenko, had been passed by the USSR Ministry of Health only for flooring. And he went on to say: "More extended use of DSP, in particular as a structural material in fabricated partitions, requires thorough study because of the material's higher 'state of saturation' in the rooms of dwellings."

It is said that there are no hopeless situations, that there is at least one way out of any problematical situation. What have the scientists suggested to the Chaadayevka combine? VNIIDrev suggested reconstruction of the DSP plant and use of a different resin (SFZh-3014), which increases the reliability of fabrications, in manufacturing the wood chipboard. MosNIP suggested that a wood load-bearing frame be used in making the houses.

It will hardly be possible to carry out the proposal of VNIIDrev in the near future because in answer to the association Penzakolkhozzhilstroy this same R. Khalitov answered that wood chipboard in which the binder used is the phenol formaldehyde resin SFZh-3014 "is not on the 'List of Passed Materials' and therefore cannot be recommended for use in housing construction without the proper research and a permit from the RSFSR Ministry of Health Care."

But how do matters stand with the recommendation of MosNIP?

"Since June the combine has been making houses with a wood frame," says V. Krutetskiy, chief engineer of the association Penzakolkhozzhilstroy. "In our view this is not the best solution from an engineering standpoint. After all, what we have actually done is to cancel out the Swedish technology. The question has been raised of modifying the enterprise and reducing its capacity...."

The problems we have referred to here are not of mere local importance at all. The Livany combine is also beset by them. To be sure, they are not anxious to give up a good idea--having a fully prefabricated cottage with load-bearing DSP, and attempts are being made to reinforce the chipboard with the help of specialists of Latvian scientific research institutes.

Soon another plant of the same kind with Swedish equipment will go into operation in Novoaltaysk. The fate of the new enterprise hangs in the balance: Will it have to solve these crucial problems on its own?

... Yes, now that several years have passed, it must be said that we were unprepared to develop the new domestic industry for large-panel wood housing construction. And the Chaadayevka and Livany combines, whose efforts were not successful in solving the avalanche of problems that fell on them, turned out to be the flankers which had to pay for the hastiness and interdepartmental indifference.

The reproach should be addressed above all to the personnel of Gosgrazhdanstroy [State Committee for Public Works Construction and Architecture] and Roskolkhozstroyob"yedineniye [RSFSR Kolkhoz Construction Association]. It was their lack of supervision and leadership during the experiment that resulted in the failure to organize in good time the production of all the components necessary for manufacture of the "Swedish" cottages. Here 2 years have already passed and they have been unable to meet and examine the situation that has come about with experimental construction in Penzenskaya Oblast.

I will go beyond that: In the administration for housing construction of Gosgrazhdanstroy they have forgotten that in May 1977 they gave their "OK" for the production of only five cottages and committed Roskolkhozstroyob"yedineniye to submit a final scientific-technical report on the first five buildings in the first half of 1978. The deadlines have all passed, but there has been no report. An important experiment has essentially been left to go its own way.

At that time Roskolkhozstroyob"yedineniye organized series production of single-design cottages at the Chaadayevka combine, though it had not permit from Gosgrazhdanstroy to do so. The managers of the republic association are apparently not bothered by that course of events. In mid-August they even held a meeting of their scientific-technical council for industrialization of rural construction in Penza. Nothing concrete was said there about ways of raising economic efficiency of operation of the Chaadayevka KPD nor about the fate of the related Novoaltaysk plant.

No one supposes that the problems encountered by the Russian and Latvian rural builders will be solved, as they say, by a wave of the hand. But something else is also clear: solving them will require the united efforts of interkolkhoz builders, scientific research institutes and associations of the USSR Ministry of Timber and Woodworking Industry and other ministries, as well as constant supervision by Gosgrazhdanstroy.

Organizational measures also suggest themselves. To be specific, the question of setting up an all-union scientific-production association Standartdom in the system of the USSR Ministry of Timber and Woodworking Industry, which would concern itself with the development of all lines of domestic wood housing construction, including enterprises with imported equipment, has been repeatedly raised of late at the most prestigious conferences. Quite a few such plants are already in operation. The Alitus combine in Lithuania is manufacturing rural cottages made from wood fiberboard. The USSR Ministry of Heavy and Transport Machinebuilding has built a plant for lightweight off-site building fabrications in Krasnoyarsk. Its products are intended for use in building well-rounded settlements in the north of the country. The Nizhneudinsk plant of the Ministry of Transport Construction has begun to manufacture container buildings for the BAM [Baykal-Amur Trunk Rail Line].

As we see, the state is not sparing of its funds to build our rural settlements properly and to create a maximum of conveniences for the pioneer builders of the Far East and northern regions. But if these enterprises are to become profitable and attain rated capacity sooner, there is a need for centralized decisionmaking on all the problems that arise, including the engineering required by the cottages already built. The all-union association could become that kind of coordinator.

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METHOD OF ANALYZING UTILIZATION OF FIXED CAPITAL

Moscow ZHILISHCHNOYE STROITEL'STVO in Russian No 10, Oct 79 pp 7-9

[Article by V. T. Karpunin, candidate of engineering sciences, Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Designs]

[Text] One of the main directions for increasing the operating efficiency of enterprises engaged in large-panel housing construction is to improve their utilization of fixed industrial productive capital.

A preliminary analysis of the operation of housing construction enterprises shows that the level of their utilization of fixed capital varies greatly. For instance, in 1976 the output-capital index ranged from 1.7 to 0.9 and less at 105 housing construction enterprises. More than 50 percent of the enterprises examined had an output-capital ratio less than unity. This indicates unused production potential and a possibility for a considerable improvement in the performance of a number of housing construction enterprises.

The methods principles examined below have been used in analyzing the fixed productive capital of the large-panel housing construction plants of the DSK [Housing Construction Combine] of Glavmosoblstroy [Moskovskaya Oblast Main Construction Administration].

The summary indicator of the level of utilization of fixed productive capital is the output-capital ratio, which reflects the ratio between the volume of output produced and the average size of fixed productive capital used over the period under review.

In the case of large-panel housing construction enterprises manufacturing a wide range of products it is more convenient to evaluate the volume of output in volume terms.

It is recommended that an analysis of the use of fixed productive capital be conducted in three stages.

In the first stage the analysis consists of studying the dynamic pattern of the output-capital ratio over the past 4-5 years. The following indicators are used in conducting this stage of the analysis: the production capacity of enterprises and the coefficient of its utilization, output in physical and value terms, the average annual value of fixed productive capital, the output-capital ratio, the production cost per unit output and profitability. The purpose of the analysis in the first stage is to study the general trend of changes in the level of utilization of fixed productive capital. In this case we discover the pattern of change of the output-capital index over the period under review (rising, falling, fluctuating within some limits, or a stable value).

In this stage the principal factor accounting for the change in the output-capital index is determined by analyzing the dynamic behavior of the volume of output and the value of fixed productive capital. This may be a change in the volume of output while fixed productive capital is fairly constant, or a change in the value of capital when the volume of output does not change. It may also be a simultaneous disproportionate change in both components of the output-capital index. The study of the dynamics of the output-capital index in the first stage gives direction to the subsequent analysis, specifically: it shows where the principal attention should be directed--to output and the level of utilization of production capacity or to the amount and value of the enterprise's fixed productive capital, or again to both simultaneously. The first stage of the analysis ends with a study of the interrelationship between the output-capital ratio and production efficiency. The second stage consists of analyzing the utilization of fixed productive capital in the last year of the period under review. First, the output-capital index of the enterprises analyzed is compared to a similar indicator (taken as a standard) for those enterprises whose performance was best over that same period and which in terms of capacity, the products manufactured and the level of plant readiness are most comparable with the enterprises being analyzed.

The purpose of comparing the figures for the enterprises being analyzed with a standard is to determine the specific large-panel housing construction plants where there is the largest potential for improved use of fixed productive capital.

Further analysis in this stage consists of studying the influence of various factors on the two principal components of the output-capital ratio: the volume of marketed output and the value of capital (Figures 1 and 2). The following are thus taken as the principal indicators determining the volume of marketed output:

i. price per unit output;

ii. capacity and level of its utilization by production line, and phases of manufacturing;

iii. capacity of the enterprise as a whole and level of its utilization;

iv. pattern of operation of production lines and stages in manufacturing.

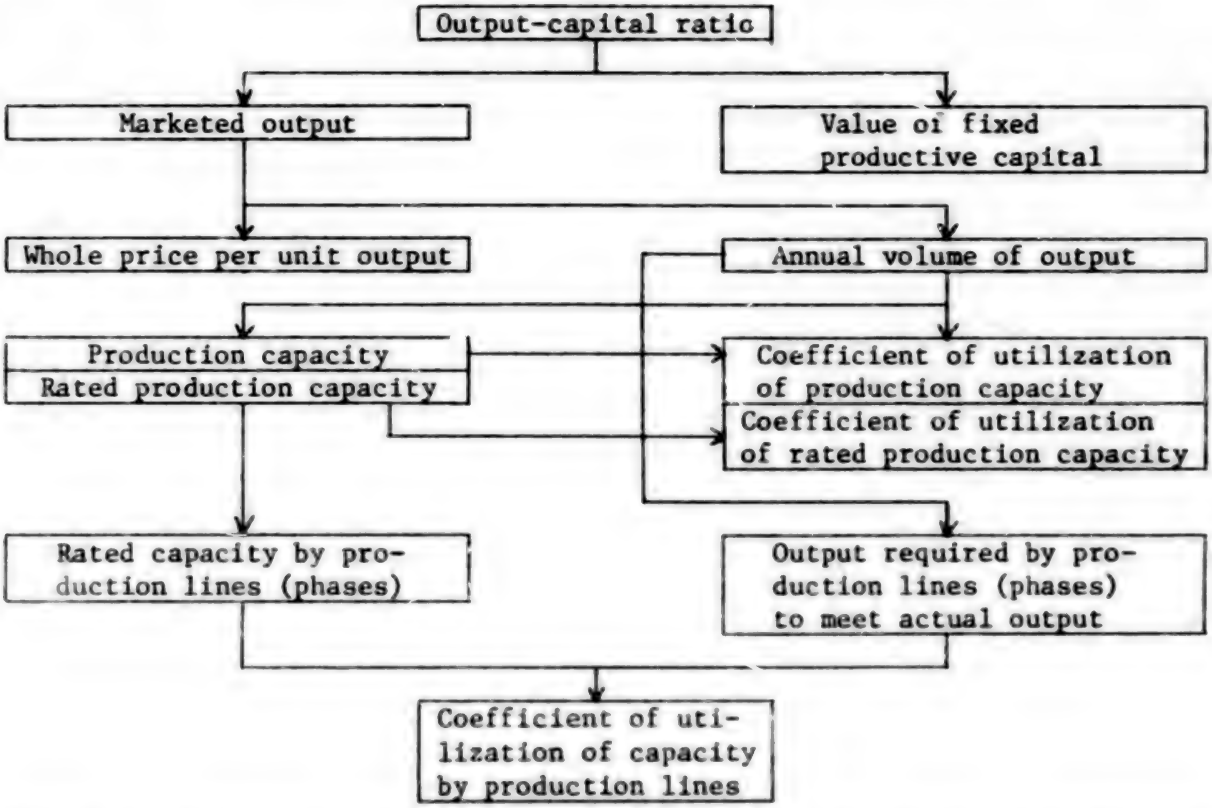
Output-capital ratio
Marketed output
Value of fixed productive capital
Whole price per unit output
Annual volume of output
Production capacity
Rated production capacity
Coefficient of utilization of production capacity
Coefficient of utilization of rated production capacity
Rated capacity by production lines (phases)
Output required by production lines (phases) to meet actual output
Coefficient of utilization of capacity by production lines

Figure 1. Schematic representation of analysis of the volume of production and the value of marketed output.

The rated capacity of production lines and of the enterprise as a whole is determined in accordance with the "Methodological Guidelines for Calculation of Production Capacities of Large-Panel Housing Construction Enterprises" (Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Designs, Moscow, 1971) and the "Instruction on Determination of the Production Capacity of Prefabricated Reinforced Concrete Enterprises" (All-Union Scientific Research Institute of Reinforced Concrete, Moscow, 1977). The purpose of the subsequent analysis in this stage is to discover the principal reasons for a low level of utilization of capacity of production lines and phases of manufacturing. They may be interruptions in the supply of materials, intermediate products and energy resources, unscheduled downtime of equipment for repairs, violations of work discipline, deviations of the product mix from that assumed in the design, overloading of certain production sections and underloading of others, and so on.

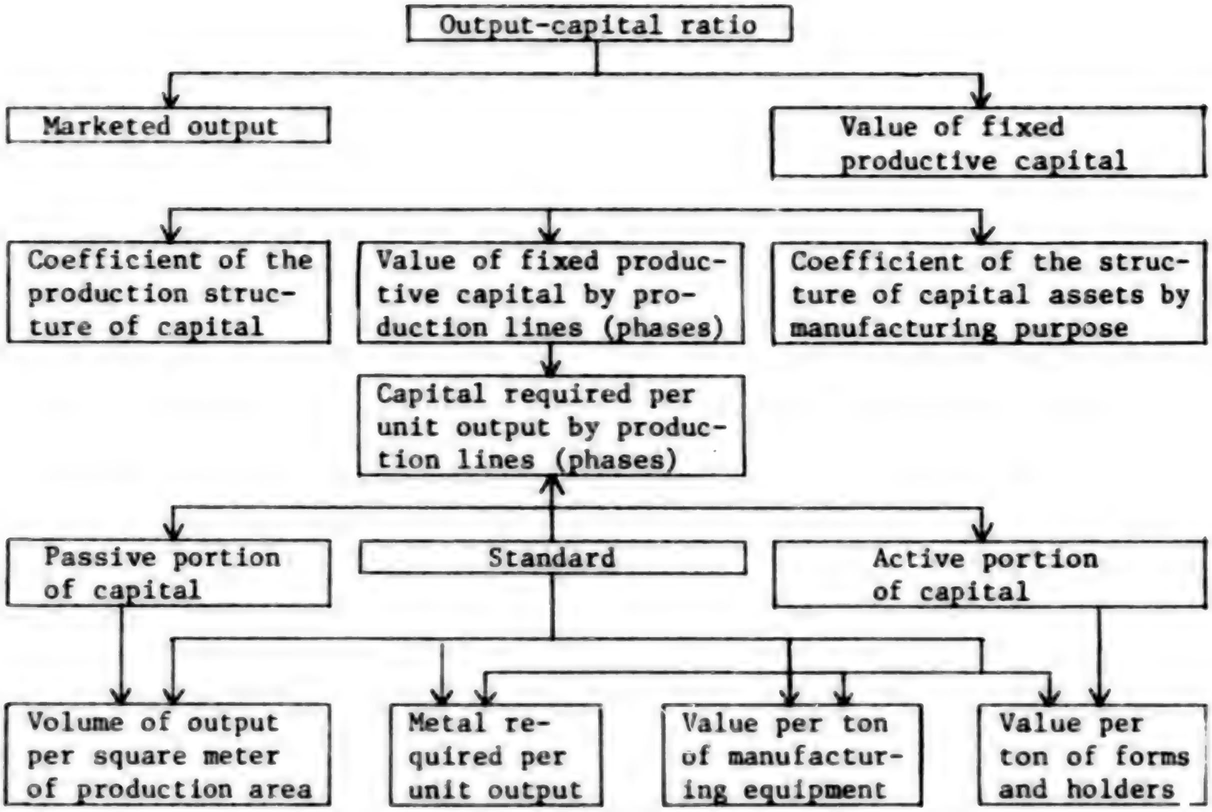
Output-capital ratio
Marketed output
Value of fixed productive capital
Coefficient of the production structure of capital
Value of fixed productive capital by production lines (phases)
Coefficient of the structure of capital assets by manufacturing purpose
Capital required per unit output by production lines (phases)
Passive portion of capital
Standard
Active portion of capital
Volume of output per square meter of production area
Metal required per unit output
Value per ton of manufacturing equipment
Value per ton of forms and holders

Figure 2. Schematic representation of the sequence of steps in analyzing the value of fixed productive capital.

The concrete-mixing unit along with the cement and filler warehouses, the metal reinforcement shop, the warehouse for finished products, and the molding operation are taken as the principal phases of manufacturing in analyzing the volume of marketed output. Analysis of the molding operation is in turn conducted by individual production lines, whose number and specialization are determined by the specific conditions of the enterprise in question.

In the pattern of the analysis, which is schematically represented in Figure 2, the coefficients of the production structure and the makeup by technological purpose show the respective shares of the active portion of capital and the value of the assets of the molding shop in the total value of the enterprise's fixed productive capital. The standard values of these coefficients for medium-size enterprises in the given period should be taken within the ranges of 0.35-0.4 and 0.4-0.5, respectively.

The following indicators are used to analyze utilization of the assets of the production lines: yield of output per square meter of production area, metals intensiveness, the average value per ton of manufacturing equipment, forms and accessories, which are also compared to a standard. The standard value and physical indicators for the given period, calculated from designs and actual figures for medium-capacity enterprises producing 400-500 grades of products are shown in the table.

Name of Production Line (manufacturing phase)	Capital Intensiveness Per Unit Output, rubles/m^3	Volume of Output Per 1 m^2 of Area, m^3/m^2	Metals Intensiveness, kg/m^3	Value Per Ton of Manufacturing Equipment, rubles	Value Per Ton of Forms and Frames, rubles
Production of outside wall panels	22- 27	12-14	15-20	900-1,000	500-600
Production of interior wall and floor and ceiling panels	18- 20	13-18	20-25	800- 900	300-400 (frames)
Production of dobornyye elements	25- 30	6- 8	17-22	800- 900	500-600
Molding production	20- 25				
Concrete-mixing unit along with cement and filler warehouses	5- 7				
Metal reinforcement shop	120-140*				
Product storage	4- 6				
Other phases	12- 18				
Auxiliary phases	30- 35				

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* In rubles per ton.

The subsequent analysis of the capital intensiveness per unit output, of the yield of products per square meter of production area and of metals intensiveness of equipment is done so as to take the following technological factors into account:

i. optimality of the flow charts adopted for manufacture of the product;

ii. composition of the stock of molds and forms (ratio between custom-made and adjustable molds on the production lines);

iii. list of the products produced and the pattern of changes in the list.

The optimality of the flow charts adopted in molding can be determined by types of products in accordance with the "Recommendations on Technical-Economic Evaluation and Selection of Flow Diagrams in the Molding of Large-Panel

Products" (Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Designs, Moscow, 1973) and the "Recommendations on Selection of Flow Diagrams for the Molding of Large-Panel Products for Differing Conditions of Construction" (Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Designs, Moscow, 1975). These recommendations were developed by the Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Designs, zonal institutes of Gosgrazhdanstroy [State Committee for Public Works Construction and Architecture], and Giprostrommash [All-Union State Planning Institute for Construction Machine Building for Prefabricated Reinforced Concrete] in the 1971-1974 period.

The relative share of the value of the stocks of forms and production accessories in the total volume of fixed productive capital of up-to-date enterprises is about 20 percent. Thus the analysis of metals intensiveness and the value of the stock of forms and production accessories is very important in drafting recommendations to improve the utilization of capital.

When the list of products being manufactured is extensive, the optimum makeup of the stock of molds on the production lines includes both custom-made and adjustable molds.

Research done by the Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Designs established that most grades of articles are best manufactured in adjustable molds in order to reduce metals intensiveness of the stock of molding equipment and the capital intensiveness of products.* Custom-made forms are economically justified only for the manufacture of products requiring complicated and time-consuming adjustments costing in excess of 20-30 rubles. The list of products produced and the pattern of changes in it also affect the metals intensiveness of the stock of molding equipment. The greater the assortment of products produced and the greater the range of variation in its makeup, the larger the metals intensiveness of the stock of equipment and the lower the output-capital ratio. This influence becomes considerably stronger when the products are produced in custom-made molds.

Thus the second component of the output-capital index--the value of fixed productive capital--is analyzed as a function of the following:

1. the total of the manufacturing equipment and the stock of molds;

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* "Rekomendatsii po organizatsii vypuska shirokoy nomenklatury panel'nykh izdeliy s uchetom faktorov stroitel'nogo proizvodstva" [Recommendations on Organizing the Manufacture of an Extensive List of Panel Products so as to Take Into Account the Factors of the Construction Process], Moscow, Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Designs, 1978.

ii. the value per ton of manufacturing equipment, molds and production accessories;

iii. the degree of utilization of production area;

iv. optimality of the flow diagrams adopted in the manufacture of the products and optimality of the composition of the stock of molds;

v. list of products produced and the range of variation in its composition;

vi. the value and level of utilization of auxiliary shops and manufacturing phases.

The third stage of the analysis consists in studying the interrelationship between the output-capital ratio on the one hand and the capital-worker ratio and worker productivity on the other (with respect to their dynamic behavior). If the output-capital ratio remains unchanged, labor productivity changes with changes in the capital-worker ratio. If the capital-worker ratio remains unchanged, the output-capital ratio rises in the same way as labor productivity. The general rule for enterprises is a simultaneously and frequently disproportionate change in the capital-worker ratio and labor productivity.

If labor productivity grows more slowly than the capital-worker ratio, then the output-capital ratio drops, and vice versa. In all stages of the analysis a distinction should be made for periods when the enterprise is undergoing reconstruction, putting a new product into production or starting up a new manufacturing process, since in most cases a drop in labor productivity and output are inevitable. Moreover, the value of fixed productive capital ordinarily increases.

The analysis of fixed productive capital of large-panel housing construction plants ends with the drafting of recommendations for improving its use. Here a determination is made of the calculated output-capital ratio and calculated rise in labor productivity which could be achieved by applying the measures which have been drafted.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ESTONIAN CONSTRUCTION INDUSTRY NEWS

Unaccaounted Equipment

Tallin SOVETSKAYA ESTONIYA in Russian 26 Sep 79 p 2

[Text] S Barinov, Inspection Chief, Estonian SSR Gossnab--Among others, the following idea is contained in the CPSU Central Committee and USSR Council of Ministers decree on improving business management. Today, planning must be supported by better grounds. In other words by maximally accurate engineering and economic computations that would promote the fastest possible renovation of production and growth in labor productivity and article quality. The decree goes on to say that the enterprise certificate presently in use would be a good basis for this.

Specifically speaking, the practice of taking stock of output capacities and accounting for productive capital had existed previously. One of the elements of this practice is the annual census of uninstalled equipment at the enterprises. Unfortunately there is little here to give us peace. The same goes for the storage of equipment received, its installation in production lines, and the organization of the enterprise in general.

The formalism (I will talk about it further below), the carelessness, and the indifference with which some specialists approach the census raise serious alarm. All the more so today, at a time in which we are preparing ourselves materially and psychologically for work in the new conditions of production planning and stimulation.

An eloquent example of this problem can be found in the Punane Kunda Cement Plant (director, Ya. Ulanen). According to the last census, as of 1 January of this year the cement workers show the following on the NO-1, the official form of the USSR State Statistical Administration: Uninstalled equipment in the plant's possession is valued at 367,000 rubles. When we correct this figure to a common denominator, we arrive at 28 units. These are the figures that were reported to the statistical agencies and the republic's Ministry of Construction Materials Industry.

We then ask: Is this report to be trusted? Not at all, an inspection showed. We compared the warehouse receipts with the plant's bookkeeping and we revealed out-and-out eyewash. For some reason some of the capital construction department's equipment (worth 139,000 rubles), equipment in the spare parts warehouse, and fixed capital worth a total of 28,000 rubles failed to appear on the census form.

But this is nothing at all when we make a comparison with the figures for equipment in the technically necessary reserve: This column concealed 322 units of equipment--worth 368,000 rubles! Was the ministry aware of what the workers of its enterprise had in their reserve? For practical purposes the plant had transformed into a savings bank of technical resources that sit unemployed for years on end.

It is difficult to determine whether or not this was done intentionally, for the purposes of under-the-counter exchange of some types of equipment for others, which, alas, is a not infrequently encountered practice. But it may also be argued that this is the consequence of negligence. Negligence first on the part of the plant management which, after appointing the census commission, failed to monitor its actions and passed the census documents on without giving them a hard look. Negligence secondly in that effort was found to be wanting on the part of the census takers--the shop and warehouse chiefs, the absolute majority of whom failed to prepare the mandatorily required inventory records of uninstalled equipment remaining in their possession. Furthermore the chief specialists approached this effort formally, without checking the figures of the appropriate documents against the true state of affairs in their services.

Ignoring the census itself and the accounting practices is not the only malady of Punane Kunda. Purchased equipment is introduced into operation very poorly here; it lies idle for years on end, officially in a process of installation. As an example two screw conveyers have not been put into operation for 5 years, and two filters and an electric jib crane have not been installed for 4 years. An imported cement cooler has been idle since 1977. And this is all happening at a time when, as we know, the plant is failing its cement production plans and retarding the work pace of construction industry.

We are especially perturbed by the way uninstalled equipment is being stored. As an example the territory of the plant's capital construction department could easily be mistaken for a scrap processing plant. Broken boxes, rusty parts, and bundles of cable are scattered about everywhere. The documents indicate this junk to be scraper conveyer, filter, and fan outfits.

Rusty mechanisms, ball mill grids, NPV-36 pneumatic screw pumps, and other things needed so much in the principal production lines are scattered about the materials warehouse.

Now let us look at the production dynamics. We know that unplanned halts in production for various sorts of repair operations are a frequent phenomenon at the cement plant. And this is no surprise, inasmuch as worn parts are replaced by units acquired from--or to be more accurate--dug out of such storage areas. These units are rusty, and as a rule the parts making them up are not stored together.

Generally speaking, we have cause to be astounded by the present situation, in which some enterprises, including large machine building ones, have no substantiated limit on their operational equipment reserves, one approved by higher levels of authority. And as long as there is no limit, there is no strict responsibility.

The Talleks Association is one of the enterprises without such a limit. And it is odd that the Soyuzekskavotor All-Union Production Association condones this fact.

Executives at Talleks also take liberties with the accounting practices, concealing uninstalled equipment worth 341,000 rubles. In particular, the association possesses presses, an automatic gas-cutting unit, a grinding mill, and a jib crane delivered and submitted for installation in 1978 but not included on the census form. Forgetfulness? I do not think so, since it is because of this equipment that delays are being experienced in attainment of the planned output capacity of other equipment.

Misrepresentations in state accounting practices at Talleks are compounded by negligent maintenance of warehouse records, which do not even contain the elementary data required in relation to all stored equipment--the plant number, the completeness of the units, their cost, and so on. This might be thought of as inconsequential, but it does in fact make it difficult to monitor the status of the equipment.

But there are greater sins as well in relation to storage of uninstalled equipment. On paper, this equipment is concentrated at the main plant's Warehouse No 5. But in reality we find that is scattered over the entire yard beneath the open sky. And naturally all of the boxes are broken.

I have presented only two examples. But we can see from just these examples that the accounting and storage of new equipment received leaves much to be desired. This situation is all the more intolerable when it comes time to draw up the enterprise certificates. After all, the certificate is not just any old document; it is a detailed accounting of all of the most important parameters pertaining to utilization of output capacities, the organizational-technical level of the enterprise, the degree to which production is specialized, and other indicators which, as the the CPSU Central Committee and USSR Council of Ministers decree emphasizes, are required if we are to draw up intense annual and five-year plans.

This is what our businessmen must come to understand.

Decisions by Estonian Ministers

Tallin SOVETSKAYA ESTONIYA in Russian 2 Oct 79 p 3

[Text] Estonian News Agency--While the total volume of urban housing construction has been increasing in our republic in recent years, the volume of individual housing construction has started decreasing. It is for this reason that the Estonian SSR Council of Ministers ordered the city and rayon executive committes, the ministries, the departments, and the enterprise and institution executives to provide help to individual builders. The executive committees are obligated to determine the optimum volume and possible locations of such construction for 1980-1990, and the Tallin City Executive Committee must finish preparing territory for individual housing construction in Saue. New territories will be assimilated for construction in subsequent years--in Niytvyal'ya for residents of Tallin, in Ikhast for residents of Tartu, and in the territory between Pyarnu and Sindi for residents of Pyarnu.

The task of the Estonian SSR Gosstroy is to promote development of detailed plans for new regions of individual housing construction, and to publish catalogs of recommended plans for individual homes. The Estonian SSR Gossnab and the Estonian Republic Union of Consumers Societies must organize the sale of mortar, concrete, and nonstandard industrial construction articles to individual builders, and the Estonian SSR Ministry of Construction Materials Industry must organize production of construction materials for which there is a public demand.

Creation of collectives of individual builders and provision of assistance to them in acquiring construction materials and utilizing mechanisms, transportation, and so on has been recommended. It is recommended that the residents of individual homes organize block committees with the purposes of improving public services, vegetating the residential areas, creating children's playgrounds, and so on.

It was noted in an inspection of the preparations being made for the 1979-1980 heating period in homes, schools, and children's institutions that communal housing agencies have basically been able to prepare the heating networks. All work has been completed in Kokhtla-Yarva. At the same time the Tallin City Executive Committee and the Estonian SSR Ministry of Construction were unable to get the Lasnamyae residential district ready for the cold season in time; nor did they organize overhaul of the utility networks of the city's residential buildings well. Repair of boiler rooms in Tartu and Pyarnu is being delayed. The government ordered the executive committees to immediately remove the local bottlenecks and take steps to achieve economical expenditure of fuel, electric power, and heat.

The progress in construction of the Tamsalu Palace of Culture was discussed. It was pointed out that it is impermissibly slow. The ministries of construction and culture and the Rakvereskiy Rayon Executive Committee are obligated to take immediate steps to eliminate the delays. Officials to blame for failure of the plan for erection of the Palace of Culture and the central boiler plant have been punished. A declaration of the Estonian SSR Ministry of Construction that the hall of the Palace of Culture will be placed into operation together with the necessary auxiliary rooms this year has been made public.

A decision was made to create four greenbelts in the republic, and new boundaries were approved for the four existing preserves. As a result the area of protected territory has increased to 40,000 hectares, making up 5 percent of the Estonian SSR's area.

In order to develop the activities of the scientific research laboratory and clinic of metallo-osteosynthesis the Estonian SSR Ministry of Public Health was ordered to intensify development of their material base, to staff these organizations with middle-grade medical workers, to form a republic burn center in the clinic this year, to create internship slots for medical students of the Tallin State University at the clinic, to initiate residency training in traumatology at the clinic in 1980, and to organize specialization and advanced training courses for traumatological physicians at the clinic. The Estonian SSR Ministry of Local Industry is organizing, at the Pioner Plant, manufacture of repositioning clamps required in metallo-osteosynthesis, based on plans drawn up by lecturer A. Seppo. There are plans for subjecting the clinic buildings to overhaul in 1979-1980.

Construction Outfit Supply System

Moscow STROITEL'NAYA GAZETA in Russian 28 Sep 79 p 2

[Text] Candidate of Economic Sciences V. Vayngort, Assistant Director, Tallin Industrial Supply Trust, and Correspondent V. Rakhmanov--According to USSR Gosstroy data more than a third of all losses of working time in construction are due to shortcomings in material supply.

But there is another statistic that reflects the other side of the problem. The amounts of all basic materials kept in reserve by construction organizations exceed the norms.

Of course, structures and materials do sometimes lie idle because certain items are lacking, such that they cannot be put to use. This is especially noticeable in relation to deliveries of prefabricated articles. When panels are present there are no cross bars, when the cross bars arrive the columns are late, and when the columns finally appear one of the foundation blocks is invariably still missing.

The problem is that the need builders experience for particular articles is always irregular. It can never be that a certain reinforced concrete cross bar of a particular brand would be needed in identical amounts each month throughout the year. And yet many supplier plants strive for uniform production, for a minimum of tool adjustments, trying to insure a rational load for themselves.

Forcing the construction organizations to "lob off" their peak demands, industry is thus imposing serious limitations on the work plans, which leads to violation of assembly procedures or accumulation of tremendous amounts of structures that remain idle for long periods of time. Thus we create an artificial scarcity of metals and cement, not to mention the freezing of working capital.

In order to subordinate the interests of the enterprises to the interests of the builders we have introduced a "structure outfit" accounting system universally. Thus organizations having the responsibility of coordinating deliveries from different plants have appeared. There are several types of these organizations. And almost all of them have been tested within the Estonian SSR Ministry of Construction.

It all began with creation of an outfit supply department operating on a khozraschet basis in the Stroyindustriya Trust. But such a department could coordinate deliveries only from plants subordinated to the trust. But in Estonia, as in many other republics, some of the structures are made by enterprises of the Ministry of Construction Materials Industry. Moreover, being part of an industrial trust, the department all too clearly held the interests of industry foremost.

Thus we had to organize an outfit supply administration within the republic ministry. It planned outfit supply by all suppliers, basing itself primarily on the plan for construction and installation. But this administration stood far apart from the enterprises, and therefore it could not influence production of the required structures. It was difficult to regulate deliveries at an operational level. Document turnover was more complicated because three independent units participated in the supply system-- the Stroyindustriya Trust, the Outfit Supply Administration, and a construction and installation trust.

In 1974 the Estonian SSR Ministry of Construction created an industrial outfit supply trust. All industrial enterprises in the ministry were subordinated to it. In relation to enterprises of other administrative departments, meanwhile, it served as a supply-and-marketing organization. The trust supplies all construction sites only with complete structural outfits. Such an outfit includes reinforced concrete, concrete, and gas concrete structures, wooden structures and articles, and commercial hardware. Metallic structures, toilets, and prefabricated sewage and ventilation units are supplied as individual outfits.

The industrial outfit supply trust (the PKT) pays the supplier plant for a plant-built outfit. It is only after all plant-built outfits are delivered that a construction trust pays for the outfits supplied by the PKT. Thus this trust exists as the sole supplier of contracting organizations, enjoying full independence in the way it organizes production and delivers industrial structures and articles.

Existence of such a trust became possible only after the Estonian SSR Ministry of Construction introduced an automated control system, the first generation of which has now been operating 10 years here. Since the day of its founding, the PKT has been supplying complete outfits of materials and structures to the construction sites.

This necessitated unification of production and supply functions within a single organizational and economic unit. And it is obviously only when we have such a combination that we can solve the problem of timely supply of complete structure outfits to construction sites.

The construction organizations define the sort of structure outfits they need at their construction sites on the basis of the work flow. The set of structures required for one story, one bay, or one section of a building or structure that is assembled by one team is adopted as a complete outfit. By assigning such a complete outfit to a team we gain the possibility for tying in this outfit supply system with the work method employed by the khozraschet team, which in itself is extremely important.

The types of structure outfits available are recorded in the information and computer center's data bank, and from this time on the construction organizations furnish the trust only with the names of the construction sites and the supply outfits needed, together with the required delivery dates.

The trust uses such orders to set up quarterly outfit delivery plans, broken down into months, and monthly delivery plans, broken down into weeks. These plans are balanced against the output capacities of the industrial enterprises. Production plans, delivery plans, and assignments to form reserves of structures to be delivered in subsequent planning periods are drawn up by the trust for the plant. The trust maintains weekly and daily control over the deliveries, coordinating them with the dispatcher services of the production-process supply administrations of the construction trusts. This work is done and the delivery plans are monitored with a computer.

The most important criterion by which the work of the industrial trust and its plants is evaluated is the degree to which they satisfy their supply schedules. It is depending on this that the bonuses to be paid to the plant engineers and technicians are determined.

Introduction of the new system has made it possible to improve supply to construction sites. In 1978 the weekly outfit delivery schedules were met by 84 percent, and in the first quarter of this year the schedules had been met by 92 percent.

But even this supply system is far from omnipotent, inasmuch as it does not concern the supply system outside the ministry.

The high level of prefabrication is transforming construction industry into a metal-intensive sector. The need for waiting for every brand of reinforced steel to be delivered and the impossibility of stockpiling it provides a poor basis for integral outfit supply. Obviously the metal marketing bases of the Gossnab must form of stockpiles of an assortment of reinforcement steel, such that it would be possible to regularly supply construction articles to the enterprises.

The existing indicators used to assess the work of constuction industry enterprises are also in conflict with the requirements of the outfit supply system. They have nothing to do with the end result of the activities of contracting organizations. Consequently it is sometimes more profitable for the enterprises to pay a fine for incomplete deliveries than to receive a bonus for satisfying the volume indicator.

A new system of assessment indicators fully tied in with the tasks of the construction organizations has been developed by the republic Ministry of Construction jointly with USSR Gosstroy's Scientific Research Institute of Construction Economics. This system is oriented at placing facilities into operation faster (that is, it foresees priority deliveries to projects nearing the construction deadline). It presupposes that a number of the presently employed indicators should become working tools, and not the final indicators they are today. This means growth in the role of the plan's natural indicators. The problem is now in the hands of the USSR Ministry of Construction and other directive agencies, which must evaluate the proposed system and test it out more quickly.

We can significantly upgrade the quality of outfit supply by reducing the engineer time associated with preparing all of the required planning documents and orders. Handling all of the supply paperwork at the construction trust level is a rather laborious operation today, because the complete set of articles for each story, section, or some other space-planning unit must be selected out of the working drawing specifications. The Scientific Research Institute of Construction Economics has developed a system for breaking down the construction project into production planning modules (PTM) in the planning stage. This somewhat increases the amount of work the planners have to do, but the total savings of labor required from engineers attains 30 percent.

The governing board of the USSR Gosstroy has examined the outfit supply experience of the Estonian SSR Ministry of Construction, and in principle it has given its approval to the system. The Estonian SSR Gosstroy has been asked to test it in the republic as an experiment.

Resolving these issues with reliance upon the CPSU Central Committee and USSR Council of Ministers decree "On Improving Planning and Intensifying the Influence of the Economic Mechanism on Production Effectiveness and Work Quality" will at last permit us to solve the supply problem, the number one problem of our sector.

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ELECTRONICS AND PRECISION EQUIOPMENT

'URAL-114" TURNTABLE RECEIVER, 'KVARTS-404' RADIO RECEIVER

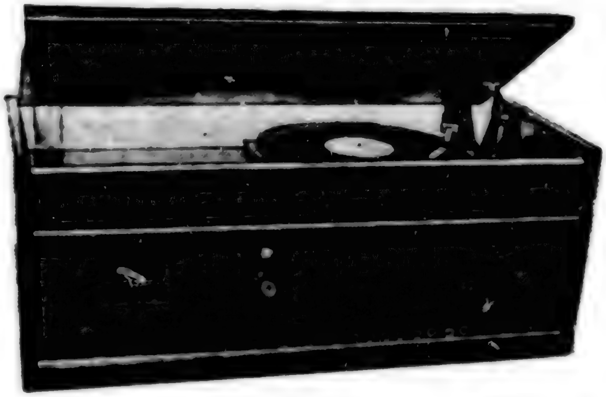
Popular Model

Moscow EKONOMICHESKAYA GAZETA in Russian No 46, Nov 79 p 23

[Text] In comparison with its preceding model, the all-band monophonic turntable receiver "Ural-114" has greater wattage output and increased sensitivity while operating in the short-wave band.

The wide-band sound system insures improved sound quality. The tonal sound quality of programs heard is regulated separately for high and low audio frequencies, and changing bands is done by pushing a button.

The price of the turntable receiver is R146.



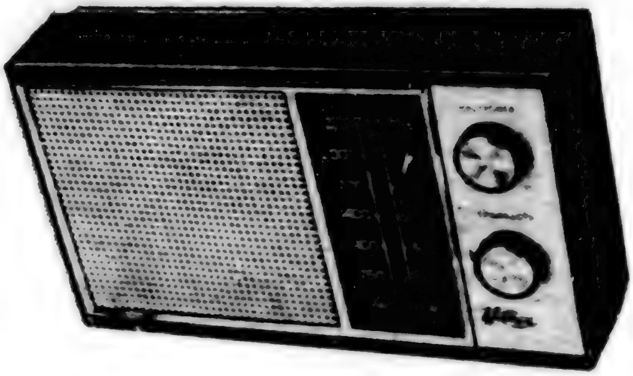
'Kvarts-404' Radio Receiver

Moscow EKONOMICHESKAYA GAZETA in Russian No 49, Dec 79 p 23

[Text] The "Kvarts-404" radio receiver has been honored as the symbol of the Olympics, which promises its high quality.

The light, compact transistor radio "Kvarts-404" reliably receives broadcasts in long- and medium-wave bands.

The price of the radio is 32 rubles 20 kopecks.



CSO: 1821

ELECTRONICS AND PRECISION EQUIPMENT

CHARACTERISTICS OF TV SET, TAPE RECORDER NOTED

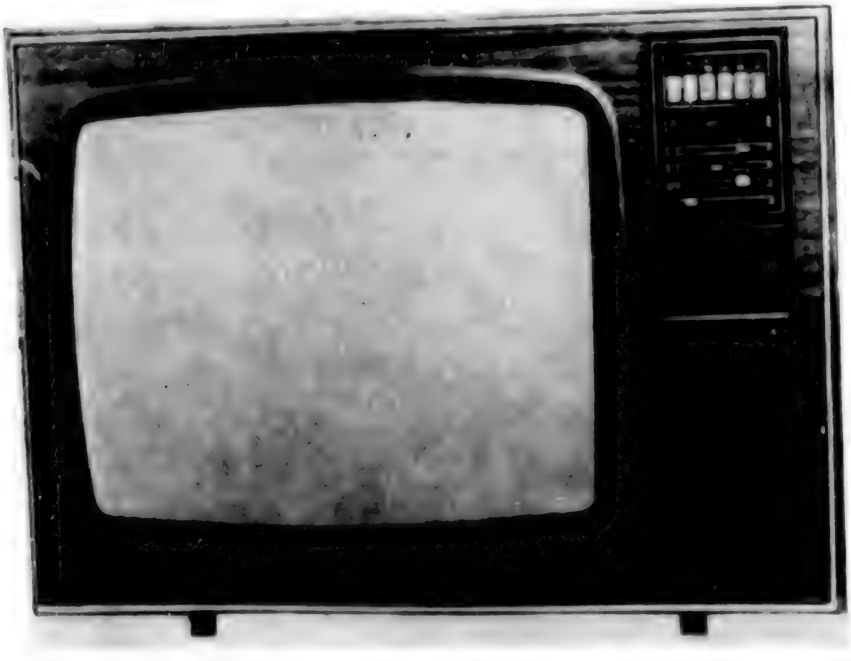
'Elektron-718' TV

Moscow STROITEL'STVO I ARKHITEKTURA MOSKVY in Russian No 10, Oct 79 p 35

[Text] The TV for you is the "Elektron-718." The colors on its screen are always clear and natural, and the image is distinguished by steadiness and sharpness.

Push-button channel changing makes this model simple and convenient to operate. The "Elektron-718" insures reception of programs in both meter and decimeter bands.

The cost of the "Elektron-718" is R755.



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'Saturn-201' Tape Recorder

Moscow STOITEL'STVO I ARKHITEKTURA MOSKVY in Russian No 10, Oct 79 p 35

[Text] The two-speed four-track tape recorder "Saturn-201" has a broad frequency band and a complete sound system. It is simple and reliable in use.

Features of the tape recorder include: a "pause" button for briefly stopping the tape, a needle indicator, tone quality controls and a counter for measuring tape flow.

The price is R210.

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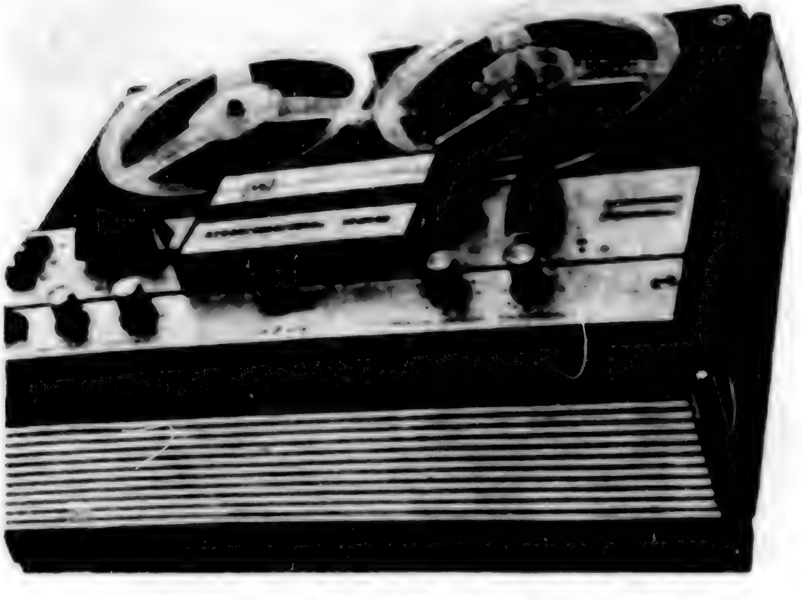
ELECTRONICS AND PRECISION EQUIPMENT

FEATURES OF 'SNEZHET'-202 TAPE RECORDER LAUDED

Moscow GORODSKOYE KHOZYAYSTVO MOSKVY in Russian No 11, Nov 79 inside back cover

[Text] With a little imagination and the help of the "Snezhet'-202" tape recorder you can create a composite program for a dance party, an entire home performance or as an audio message to a friend.



Great potential was foreseen in the design of the tape recorder: The "trick" and "pause" mechanisms permit you to make the most varied recordings on four tracks and in three speeds.

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METALWORKING EQUIPMENT

MACHINE BUILDING INDUSTRY IN BELORUSSIA

Minsk PROMYSHLENNOST' BELORUSSII in Russian No 6, Jun 79 pp 5-13

[Article by L. Firisanov, Secretary of the Central Committee, Belorussian Communist Party: "Our Urgent Task"]

[Text] Dynamic and proportional development of public production, increasing its efficiency and improving by all possible means the quality of work in all sectors of the national economy are central in the party's economic policy. Acceleration of the pace of scientific-technical progress and combination of the achievements of the scientific-technical revolution with the advantages of the socialist system of government constitute a crucial condition for realization of these goals.

As Comrade L.I. Brezhnev pointed out, the party holds the premise that "only under the conditions of socialism can the scientific-technical revolution take the true path to satisfaction of the interests of man and society. And in turn, only on the basis of accelerated development in science and technology can the final tasks of the social revolution be accomplished and a communist society built."

A particular responsibility in these pursuits rests on the machine building industry -- the branch of industry that provides the national economy with its means of production. While its output is being increased by a factor of 1.5 during the current five-year plan, it is essential that the qualitative characteristics of machines and mechanisms, machine tools and instruments be improved and the technical level of production be systematically raised.

All these questions are kept in the center of attention by the party organizations of Belorussia, which during the years of Soviet power has become a republic of developed and advanced machine building. At the present time, for instance, it accounts for 15.3 percent of union-wide production of tractors, 14.2 percent of metal-cutting lathes, 13.8 percent of rocker bearings, 5.1 percent of trucks and 4.4 percent of automatic production lines.

Machine building and metalworking products account for 30.8 percent of all production in the republic.

And the level of technical equipment in the machine building enterprises is high. During the years of the Tenth Five-Year Plan alone the number of automatic lines in operation in these enterprises increased by a factor of 1.5, mechanized continuous-operation lines by a factor of 1.2 and complex-mechanized shops and sectors by a factor of 1.4. In all, in the machine building enterprises there are 3,000 continuous-operation and mechanized continuous-operation lines, more than 450 automatic lines, more than 560 complex-mechanized and 20 automated shops and sectors and 17,900 units of equipment -- automatic and semiautomatic -- not installed in lines.

More than 50,000 engineers work in Belorussian industry (almost 60 percent of them in the machine building industry). Hundreds of planning, design and technological organizations, bureaus and sections have been created. In a word, our republic has everything necessary for bringing the decisions of the 25th CPSU Congress into being.

Under these conditions very responsible tasks face the party organizations of the machine building enterprises. First of all it is essential to ensure a systematic approach and composite use of existing reserves and capabilities which can ensure attainment of the established goals, particularly raising production efficiency and technical level of products.

In this regard I would like to stress some key points. The party organization of the republic has its greatest attention focused on these points today. First -- creating equipment that delivers maximum economy of labor and material resources.

Many enterprises are successfully coping with this problem. Take, for example, the Minsk association for production of automatic lines. In recent years its collective has reached new qualitative heights by changing over from production of individual lines to production of automated complexes capable of complete mechanized machining (and, if necessary, assembly, balancing, control, etc.) of parts for machine products. In the Tenth Five-Year Plan 14 of these complexes, which consist of 81 automatic lines and hundreds of units of other technological equipment, will be produced for the Kama Automotive Plant [KamAZ].

What specifically does the new equipment do to raise production efficiency and save human labor?

Take just the complex for machining connecting rods for KamAZ engines. It facilitates the output of more than one million parts annually; it frees (in comparison with traditional technology) 375 men and save 800,000 rubles.

In 1978 the Minsk association produced for KamAZ 23 automatic lines for machining hubs, brake drums, brake discs, semi-axles and other automotive parts. Their use will free 1,200 men and result in annual cost savings of two million rubles.

This year the automobile workers of the giant plant a Naberezhnyye Chelny will receive 25 more lines from Minsk, 17 of which will be controlled by electronic systems. This machinery will facilitate automation of many diagnostic functions resulting in significant savings of material resources and manpower.

However, even with all the progressiveness of modern equipment, its creators have no right to forget one of the most important requirements of the 25th CPSU Congress -- all out activities must be subordinated to the final national economic results. In other words, new equipment must ensure a high return to the national economy.

Our republic has a lot of experience in resolution of this problem. In particular, all the enterprises in Mozyr' have established creative groups who are tasked to determine the feasibility of introducing this or that machine tool or assembly. In a number of instances, instead of introducing new equipment, they propose technically and economically more rational modernization of existing equipment. The work of these groups is directed and controlled by the city committees of the KPB [Communist Party of Belorussia].

Unfortunately, some enterprises, concerned about their own economic indicators, do not think about whether the equipment they produce will ensure a rise in productivity in the national economy proportional to its higher cost. This, in particular, applies to our machine tool builders.

It seems to me that this is an important area for activity by party organizations today. They must thoroughly analyze the state of affairs in production and halt any tendency to place propritary interests ahead of final national economic results.

Much work aimed at achieving high final results is being done by the collective and party organization of the leader of Belorussian machine building -- the "BelavtoMAZ" association. In a generalized view these results look like this: each new series of MAZ [Minsk Automotive Plant] vehicles brings tens of millions of rubles to the national economy. In 1979 a prototype group of the planned MAZ-6422 vehicles was produced. Retooling the enterprise and changing over to production of vehicles in this series will represent 850 million rubles to the state.

"The basic directions for development of the national economy of the USSR during the 1976-1980 period" called for developing production of dump trucks and tandem dump trailers with capacities of 75 to 120 tons for the mining industry. Responsibility for achieving these goals was laid in its entirety on the automobile makers of Belorussia.

Already last year the country's miners received about one hundred 75-ton BelAZ vehicles and work is under way on dump trucks with 110- and 180-ton capacities. It is calculated that replacing a 40-ton dump truck with a 75-ton truck will increase labor productivity by and factor of 2.1 and the use of 110- and 180-ton vehicles will increase labor productivity by factors of 2.8 and 4.5 respectively.

Improvement in the association's products comes largely from its fight for higher reliability and durability in all stages -- from experimental design development and technological preparation for production to vehicle operation in the national economy. This is a difficult task, made even more so by the fact that the association comprises seven plants, one of which is located in the RSFSR. Under these conditions it is difficult to ensure unity, not only in the organizational and technical arena but also in party leadership of the collective. But I think a proper solution to the problem has been found -- a council composed of party committee secretaries has been created to coordinate and direct the organizations of all BelavtoMAZ enterprises.

The association has a system for studying the operational reliability of its vehicles and actual expenditure of spare parts. It is based on in-depth analysis of information from automotive support organizations in various parts of the country (all the way to the BAM [Baykal-Amur Mainline Railway]) data from vehicle tests, etc.

The data received are systematically classified and form the basis for the yearly "composite plan of measures to increase reliability and durability of automobiles, trailers and spare parts."

The results of this work are very significant. During the 1968-1978 period the operational life of MAZ vehicles before major overhaul increased from 120,000 to 250,000 kilometers. It is planned that this will be increased to 300,000 kilometers by 1980 and in the 11th Five-Year Plan (with introduction of the MAZ-6422 series) to 400,000 kilometers. This increased operational reliability of vehicles has a great effect on the national economy and constitutes practical satisfaction by automobile makers of the decisions of the 25th Party Congress.

At the same time it must be said that the collective of the "BelavtoMAZ" association, having exerted no small efforts to create progressive designs for road vehicles and tandem trucks, is still proceeding slowly toward opening up production of particularly high-capacity vehicles. A whole host of units and assemblies in the 75-ton dump truck are insufficiently developed from a design standpoint and existing production technology can not ensure the required operational reliability of this equipment. The KPB Central Committee had to deal with these problems in real earnest to correct the situation with production of these new dump trucks at Zhodino in the shortest possible time.

Experience has shown that significant savings of material and labor resources can be realized not only be progressive design technology but also by organizational decisions. I have in mind the kind of interrelationship which was formed several years ago between the Minsk NII EhVM [Scientific Research Institute for Computer Technology] and the computer equipment plant imeni G.K. Ordzhonikidze. Even before the next new computer was designed the institute and the plant entered into close interaction and worked together all the way up to the time the equipment went into production. It is very important that the party committee of the association and the party bureau of the institute assumed coordination of party-political direction over progress of development, formulated plans for cooperative measures, jointly examined pressing questions, oversaw the assignment of personnel and ensured the responsibility of communists for progress in the most important sectors.

The results speak for themselves. The time required to prepare production capacities for output of the new equipment was reduced to one-tenth. This was the case, for example, with the deservedly well-known "Minsk-32" computer and was the case with some other subsequent third-generator computers. The computers built with new "organizational technology" are of high quality and their creators have been distinguished twice in recent years by award of the USSR State Prize.

This experience deserves the greatest attention. It goes without saying that a mechanical repetition of these methods will have no particular benefit. They require creative thought on how they can be applied to specific production conditions and a quest for new ways that they can be supported by organizational and party-political efforts. Even the collective and party organization of NII EhVM and the Ordzhonikidze plant should reexamine their own practices. They have somewhat relaxed their efforts in recent times and this has shown up in the quality of preparation for production of new computers in the Unified system.

All that has been said above has a most direct application to my second key point -- improving the quality of machine building products to a level equal to or superior to the best in the world.

At the 25th CPSU Congress Comrade L.I. Brezhnev said: "High quality -- this means economy of labor and material resources, growth of export opportunities and, in the final analysis, better and more complete satisfaction of the needs of society." These words have deep meaning. We must solve the problems of quality, not superficially but in essence, and disseminate more widely the experience we have. I will not address the question of introducing a composite quality-control system -- this deserves a special discussion. I will touch on some other aspects of the problem.

During the Tenth Five-Year Plan the output of products in the highest quality category from USSR Minpribor [Ministry of Machine Building for Light and Food Industry and Household Appliances] enterprises in Belorussia increased by a factor of 6.9; from Minzhivmash [Ministry of Machine Building for Animal Husbandry and Fodder Production] enterprises by a factor of 4.5 and so forth. In 1978 GPZ [State Bearing Plant] 11 labeled 26.3 percent of its products with the State Mark of Quality; the Minsk machine tool association reached 60 precent; MTZ [Minsk Tractor Plant] 61.2 percent and MAZ [Minsk Automotive Plant] 62.8 percent. On the whole this is not bad.

Let us look at a table of comparison indicator on the MTZ-50, 80, 100 and 142 "Belarus'" tractors and the best foreign counterparts. It will give a visual presentation of constant growth in the technical level of Minsk tractor production. If, let us say, the MTZ-50 and MTZ-80 are inferior in rated engine power and maximum hydraulic system pressure (the MTZ-50 also in number of gears), then they are superior in fuel economy and material consumption. As regard the future MTZ-100 and MTZ-142 machines, they will be equal to their counterparts in engine power and superior in all other parameters. Achievement of the best indicators in the world and exceeding them will result from constant analysis of the experience of foreign tractor makers and development of new, more progressive decisions.

The path to world competition in scientific and technical ideas leads not only through foreign markets but also through the shops of our own enterprises. It is well known, for example, that the KamAZ is outfitted with a significant amount of imported equipment. And experience shows that in productivity, accuracy, ease of servicing and degree of automation Minsk-produced automatic lines are superior, in an overwhelming majority of cases, to lines produced by the Italian firm "Berardi" which are installed at the Kama plant. But unfortunately, we have collectives which have been producing obsolete equipment for years on end. In particular, this applies to the advanced, in an overall sense, Gomel' machine tool plant imeni S.M. Kirov, which is continuing production of shamefully out-of-date shaping machines.

The third key point should be brought out here -- introducing progressive equipment and advanced technology on a broader scale.

Specialists of GPZ 11, in cooperation with scientists and on the basis of analysis of experience of foreign firms, developed a principally new design for a dual-race, spherical roller bearing and began producing it in 1978. The durability of the new bearing is double and its load-bearing capacity is 30 percent higher than that of previous designs. Production of these new bearings saves a significant quantity of non-ferrous metal. The enterprise has practically equaled, and has a real possibility of exceeding, the qualitative indicators of products from the best foreign firms. And the Minsk-produced multi-race bearings for oil and gas drilling rigs, generally speaking, have no peer.

I will cite several more characteristic figures. Up to 80 percent of the growth in production volume at GPZ 11 is attributable to increased labor productivity. The degree of mechanization in primary production has reached 94 percent. The rate of growth in production volume of the various shops ranges from 12 to 30 percent. Products in the highest quality category will account for 32.4 percent of total production this year.

Where does the secret of such of high achievement lie? Every year a "composite plan for technical progress and socio-economic development" is formulated here which encompasses more than 300 measures, the economic effect of which exceeds 1.2 million rubles. In accordance with these measures, during the Tenth Five-Year Plan the enterprise has introduced new, high-efficiency polishing equipment and automated forges, mastered die casting of aluminum alloys, etc. To fulfill the plan the plant will put automatic lines into operation in three shops, which will cut labor consumption in mechanical machining in half. It will also introduce, for the first time in the USSR, manufacture of bearing parts by powder metallurgy methods.

The techno-economic basis for the next phase of modernization was signed in 1978. As a result of this modernization the enterprise will gain the capability to introduce complex automatic continuous lines -- the last word in world bearing-production practices.

The success of the on-going modernization lies not only in the soundness and validity of its organizational and technical measures but also in the large amount of political-indoctrinational and explanatory work being done under the leadership of the plant's party committee. Everyone here knows the goals and tasks of his sector, shop and the plant as a whole. The party organization indoctrinates the people with a feeling of personal responsibility for the success of the common cause, using to this end party meetings, classes in the party and komsomol enlightenment system, economic education, the local press and many other forms of agitation-propaganda and indoctrinational influence on the collective.

Speaking of introducing advanced equipment, I cannot fail to mention such an important point as the use of digital program-controlled (ChPU) machine tools. They not only facilitate increased labor productivity and quality in mechanized machine work, but also allow the use of computer equipment in the technological production line. Last year, for example, the Minsk automatic line plant generated and implemented 3,630 control programs for operating ChPU machine tools, including machining centers. Of these programs, 64 percent were created by an automated method using computers. This same enterprise is building the first convertible automatic line in the country consisting of four machining centers and intended for independent production. The programs for this line will be prepared on an M-6000 computer.

The digitally programmed machines are not only highly productive; they are also very expensive. For this reason it is exceptionally important to ensure their most effective use. At the present time there are 273 units of ChPU equipment in operation in the "BelavtoMAZ" association; by the end of this five-year plan the number will be 415. These will replace 851 units of general-purpose equipment, free 445 men, increase labor productivity by a factor of 1.5-2.2 and shorten the time required for technological preparation for production. Overall this will represent savings of about 2.5 million rubles.

To make this return a reality the association has established a central plant laboratory devoted to programmed machine tools. It directs installation and check-out of equipment, development of programs for machining parts and compilation of inventories. The ChPU equipment is loaded to 72-90 percent of capacity.

Specialized sectors for ChPU machine tools have also been created in the Minsk machine tool association, the Gomel' "Gidroavtomatika" association and a number of other enterprises. Concentration of this high-efficiency equipment, its program support and specially selected parts inventories ensures the effective use of this progressive equipment.

Such advanced shaping technology as electrophysical and electrochemical metalworking methods, plastic distortion insteading of cutting of metals as well as others are being employed on an increasing scale. More than 40,500 tons of parts and blanks are produced at the Minsk tractor plant by surface stamping, forge roller shaping, cross-wedge and cross-screw rolling and hot extrusion. The Minsk automotive plant will produce 8,300 tons of parts and blanks this year by cold mass stamping, hot extrusion and cold rolling. The metal-consumption factor in these processes increases by 0.9 percent but the productivity of labor increases by 30-40 percent.

At the same time we must not close our eyes to the fact that many enterprises are still working in the old-fashioned way and using antidiluvian technology. This applies, in particular, to the Mogilev metallurgical plant imeni A.F. Myasnikov. On the one hand, progressive pipe-casting technology has been introduced; on the other, sheet rolling is still done by antiquated methods.

The administration and party organization of the plant and the Mogilev oblast party committee have been persistently bringing up for a long time the question of basic retooling of the rolling mill and broad-scale introduction of automated equipment and progressive technological decisions. However, the responsible ministry is not resolving these questions.

Introduction of progressive technology to metalworking takes on exceptionally important meaning in view of the CPSU Central Committee's resolution

"On Organizational and Political Work of the Chelyabinsk Oblast Party Committee to Save Ferrous Metal in Enterprises and Construction Projects in that Oblast in Light of the Requirements of the 25th CPSU Congress."

Much is being done to save metal in the enterprises of our republic by creation of machine designs that use less material and introduction of progressive technology. The "Gomsel'mash" [Gomel' Agricultural Machinery Association] saved 1,385 tons of rolled ferrous metal in 1978 and the "Atlant" saved 1,188 tons. Significant ferrous metal savings have also been achieved at BelavtoMAZ, MTZ and others. At the same time one cannot avoid by silence that fact that last year alone the "Belvtorchermet" [Belorussian Ferrous Metal Scrap and Waste Processing Plant] received almost 140,000 tons of steel scrap and more than 45,000 tons of iron scrap. In other words significantly more metal wound up as scrap than was saved.

This example is evidence that the party organizations have relaxed their attention to questions of introducing low-waste and waste-free metalworking technology and are not concerned enough with fulfillment of the requirements of the 25th CPSU Congress "to ensure during this five-year plan a 15-16 percent savings of rolled ferrous metal in the machine building and metalworking industry."

This cause is hindered to a great degree by obsolete methods for planning casting tonnage. This leads to artificially high estimates of casting weight and creation of an enormous quantity of waste metal, the "production" of which costs just as much as does production of finished products of equal weight. In it chase after "tonnage" the Gomel' "Tsentrolit" plant refuses to prepare castings within the tolerance limits established by the machine builders, pleading "lack of technology." Acting on this same principle, the casters of the Minsk Automotive Plant deliver to enterprises of its own association -- BelAZ -- castings with significantly increased tolerances.

To halt such occurrences we must make wide use of indoctrinational measures and party influence to persuade people by both word and deed. Elimination of the distinction between "ours" and "theirs" is one of the most important tasks of party organization and communist indoctrination of worker collectives -- the tasks that ensue from Lenin's thesis of just what communist labor means.

The fourth key point to which we should devote attention is -- reserves which lie within modern, progressive organizational decisions. Unfortunately, even though we have had some success, we have done far from everything in this area.

The great effect that introduction of automated control systems has is well known. Thirty such systems are in operation in the republic's machine building industry. Twenty-eight of them are ASUP [automated system for control of the enterprise]. And only two enterprises have AS TPP -- automated system for technological preparation for production -- in operation.

The experience of the Minsk association for production of automatic lines attests to how rational the use of AS TPP is. In cooperation with the Institute of Technical Cybernetics of the AN BSSR [Belorussian Academy of Sciences], this association has introduced a system for automated design and mechanical machining of spindle housings for machine tool assemblies. It provides working designs, boring coordinates and assembly tables; it gives angular strength factors; it generates programs for the automatic graphics drafter and the processing center.

In cooperation with scientists from the institute, work is under way to create systems to automate design of technological projects. Automated design of group technology for production of cylindrical gear wheels and various bushings has already been introduced. With the aid of computers more than 1,200 processes for pinions and about 1,500 for bushings are designed here each year. Systems are being developed to use third-generation computers in design of technical processes for producing shafts and flanges and compilation of a "data base for technological preparation for production."

Experience of the AS TPP operation in this enterprise and in the "Gorizont" association has been known for some time; it has been widely disseminated in our country and beyond its borders. However, the progressive achievements of cybernetic scientists are little-used in our republic. To justify this situation some managers plead a lack of required technological means. But, as the saying goes, water doesn't flow under a lying stone. With the proper persistence by leaders of the enterprises and party organizations these questions can be, and must be, handled more effectively.

Resolution of the problems discussed above lies in introduction of composite goal-oriented systems. These will allow objective evaluation of the technical level of production and products and concentrate the activities of worker collectives on attainment of established goals.

The 25th CPSU Congress assigned the task of raising the efficiency and quality of work in all sectors. It noted that in the past year or two many enterprises have made a fundamental turn toward quality. Meanwhile it is necessary to find the main directions of various factors, determine their interaction and ensure a composite approach to production management and increase attention to problems of increasing efficiency, including the efficiency of products in the national economy.

Many enterprises in the republic are developing and introducing systems which constitute a complex of constantly functioning organizational, technical and economic measures for setting production goals and defining ways and means to achieve them; measures which ensure systematic control and goal-oriented influence over all conditions and factors which affect production efficiency and product quality.

Such systems are usually spread over a number of basic programs, for example, "Efficiency," "Quality," Scientific-technical Base" and the "Collective," regulated by standards of the enterprises.

The goals of these programs are as specific as possible. For example, in the Vitebsk "Monolit" associattion basic indicators of the "Efficiency" program include the ratio of productivity growth to each percent of increase in capital expenditure. The "Quality" program envisions an increase in the level of progressiveness to 0.93. Attainment of these basic indicators is based on the "Scientific-Technical Base" program, whose goal is to raise the integral indicator of the scientific-technical level of production from 68 to 78 percent (such should be the percentage of growth due to factors of the scientific-technical process). While the first three programs have an organizational-technical and economic direction, the fourth program -- "The Collective" -- encompasses ideological support for attainment of goals of the entire system as a whole. These are:

To ensure close unity of ideopolitical, labor and moral indoctrination, taking into account peculiarities of the various worker groups;
To create favorable conditions for highly productive labor and wide application of the creative abilities of workers.

In other words, we are talking about a composite approach to indoctrination in light of the decisions fo the 25th CPSU Congress on broad-scale competition and social development of the collective.

A system approach and planned development in ideological work will allow one to see its near-term and long-range goals and define ways and means to achieve these goals.

In a word, useful experience does exist. But why is it not being widely used? There are no objective reasons. Sometimes they plead that methods employed at certain enterprises are not perfected and indicators are not universal. And, in all probability, this is the case. For example, the "Monlit" workers themselves consider their system to be experiemental and they are constantly perfecting it. It seems to me that active assistance in overcoming such difficulties can and should be provided to industrial enterprises by economists of the republic.

We have no lack of economic institutions, under various departmental subordinations, but, frankly stated, their work does not always yield the desired practical return. One practical solution might be establishment of direct contacts between the party organizations of economic institutions and inddustrial enterprises and patronly assistance from scientists in development of methods and indicators systems which would allow objective evaluation of the scientific-technical level attained in, first of all, the machine building enterprises.

I should address some of the unresolved problems which are, to a certain degree, holding back further elevation of the technical level of Belorussian machine building products.

In the area of design:
It is well known that MAZ vehicles and MTZ tractors are exported to dozens of countries of the world. However, their level of human engineering and esthetic development is still low. Other machine building enterprises also show insufficient regard for these questions, devote little attention to development of their designer services and do no put urgent tasks, essential for production, before the Belorussian branch of VNIITEh [All-Union Scientific Research Institute for Technical Esthetics] or specialist of the Belorussian State Institute for Theater and Art. Meanwhile the low level of human engineering and esthetics in a host of machine building products detracts from that which has been achieved and decreases, somtimes to a substantial degree, our export opportunities.

In the area of introducing new equipment:
It was noted at one of the recent plenary sessions of the KPB Central Committee that at the beginning of 1978 127 million rubles worth of uninstalled and superfluous imported equipment was standing in the enterprises of the republic. A year later it had grown to 136.5 million rubles worth. On 1 January 1979 140 million rubles worth of this equipment was still being installed or was installed but not yet operational -- in a word, it was idle.

Enormous capital is immobilized in this way. The question arises: why does this happen? The usual answer is that construction workers are lagging behind and there is nowhere to install the equipment. This actually does happen and, unfortunately, it is not a rare occurrence. However, attention must be directed to another, no so noticeble, side of the matter -- the attempts by a number of leaders to "pick out" only imported equipment. I think this is a harmful practice. The interests of production and technical progress far from always require expenditure of huge sums of capital.

It is well known what great attention the KPB Central Committee, the Belorussian government and the republic's scientific community are devoting to retooling the "Gomsel'mash" plant and the start of production of its self-propelled fodder-gathering combine. Dozens of plants in the republic are cooperating with the Gomel' plant by delivering technological hardware, assemblies and parts for the KSK-100. Scientists of the Physio-technical Institute of the AN BSSR also made their contribution to this project by developing technology for the plant to make a tapered shaft by the cross-wedge rolling process. It goes without saying that neither the institute nor the AN BSSR as a whole is in a position to build a rolling press for the plant. As a result, the progressive, high-efficiency process has not been implemented because the plant is again, it seems, awaiting receipt of imported equipment.

And here is another striking example. Belorussian scientists developed the principles and made the instrument for rotary machining of metals. A proposal was made to introduce it into the Mogilev plant "Ehlektrodvigatel'." The plant, however, refused it in hopes of receiving imported equipment. And this in spite of the fact that the foreign equipment uses the principle of rotary cutting developed in Belorussia.

Experience of leading enterprises provides evidence that this orientation toward acquisition of imported equipment and components is far from always justified.

The Minsk tractor plant, to a significant degree, develops and builds new specialized equipment with its own resources. In particular, the main welder section developed, built and introduced 20 specialized machines for friction welding. The high technical level of this equipment is shown by the fact that it is being used successfully, not only at MTZ but also in such large enterprises as the "AvtoZIL" association, the "Kirovskiy Zavod" and the Chelyabinsk, Kishinev and Vitebsk tractor plants. The cost of the machines developed at MTZ (depending on configuration and degree of automation) is from 15,000 to 25,000 rubles. The cost of counterpart imported equipment is from 60,000 to 80,000 rubles. This same section also designed and introduced three automatic lines for welding tractor spatial assemblies. All three of them cost the enterprise 450,000 rubles. At the same time lines of the same type purchased abroad for other plants cost about two million rubles each.

In the area of introducing scientific achievements:
The experience of the collectives of scientific institutions and enterprises in our republic in strengthening reciprocal contacts received union-wide publicity. For the first time in this country, training-scientific-production associations, MAZ-BPI [Minsk Automotive Plant - Belorussian Polytechnic Institute] and MTZ-BPI [Minsk Tractor Plant - Belorussian Polytechnic Institute], were created in Minsk. There are now 20 such associations in the republic. Following the self-initiated creation at BelavtoMAZ of an academic section for study of truck problems (OGrA), the AN BSSR and the Gomel' enterprise formed an academic research tractor association (ANITRO). With its resources the Gomel' "Gidroavtomatika" opened the dually-subordinate problem study laboratory in the BSSR Academy of Sciences.

Nevertheless, it shoudl be said over and over that many very important scientific and technical developments have a hard time finding their way into practice. Scientists of the AN BSSR, for example, developed procedures and equipment for electro-erosion manufacture of stamping machines. The new equipment was introduced in the Borisov plant which produces auto-tractor electrical equipment and is having a significant economic and social effect. However, it never went further in our republic than this enterprise.

Dissemination is also slow of such progressive methods as hot hydrodynamic extrusion, split chill mould casting, cross-wedge rolling and plasma processing of materials. The new superhard material [belbor] is being manufactured on a very modest scale.

The Belorussian Polytechnic Institute's Scientific Research Institute of Powder Metallurgy -- one of the largest scientific institutions of it kind in the country -- is working successfully. Nevertheless, the scale of production of powder metallurgy articles is still small. Only about 650 tons of such articles are produced. Powder metallurgy sectors are set up in only six machine building enterprises in the republic. On one hand the development of powder metallurgy is being held back by the lack of a proper experimental base in the NII PM [Scientific Research Institute of Powder Metallurgy] and a specialized plant for producing articles from metal powders. On the other hand, insufficient initiative is being shown by industrial enterprises which are waiting for "someone else" to give them the needed articles.

Strengthening contacts with scientific institutions and accelerating implementation of the achievements of science and technology -- this is still another spacious field for activity by party organizations of the machine building enterprises.

In the area of loading-unloading and transportation:
It is absolutely intolerable that up to the present time finished products are being packed and transported in an antiquated manner. It is possible that it is still hard to find a replacement for the wooden crate. But are boxes so necessary for transportation of Mogilev elevators or Minsk motorcycles? I think not. Meanwhile the Mogilev elevator makers and the Minsk motorcycle plant use more wood than all the machine tool plants in the republic together -- 60,000 cubic meters. To supply this it is necessary to cut approximately 450 hectares of timber. In all the machine building enterprises of the republic use 331,000 cubic meters of raw lumber each year which (converted to round logs) is equivalent to harvest of 2,200 hectares of timber.

One of the most important tasks for party organization of the republic's enterprises is to wage a decisive battle against this kind of wastefulness and direct the efforts of specialists to development of methods and means for tare-free shipment of finished products, as this was done, in particular, by the "AvtoVAZ" association.

The KPB Central Committee and the republic's Council of Ministers constantly keep the questions of increasing the technical level of production and industrial products in the center of attention. The resolution "on measures to further perfect planning of scientific research and accelerate introduction of its results into production," adopted by the KPB Central Committee and the BSSR Council of Ministers in December of 1976, was targeted on these goals. In accordance with this resolution, 35 republic scientific research programs and 21 implementation programs were instituted. All of them are oriented toward creation and introduction into production of new technical and technological decisions, methods and recommendations. Decisions have also been adopted to step up work in the battle against metal corrosion and disseminate the Chelyabinsk experience in rational use of metal. Measures are being taken to expand the scale of application of achievements in powder metallurgy and plasma processing of metals.

Party organizations of the republic's indistrial enterprises must fight more agressively for resolution of these problems and realization of the programs set forth by the 25th CPSU Congress and 28th KPB Congress. With all their inherent forms and methods of influencing labor collectives, they must see to that within this five-year plan the machine builders of this republic cease to produce article that, as Comrade L.I. Brezhnev said figuratively, can be considered new only by their date of manufacture.

True innovation, modern scientific-technical level, high capability to compete on the world market -- these and only these must be the characteristics of our machine building products. Achieving this is our common task.

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